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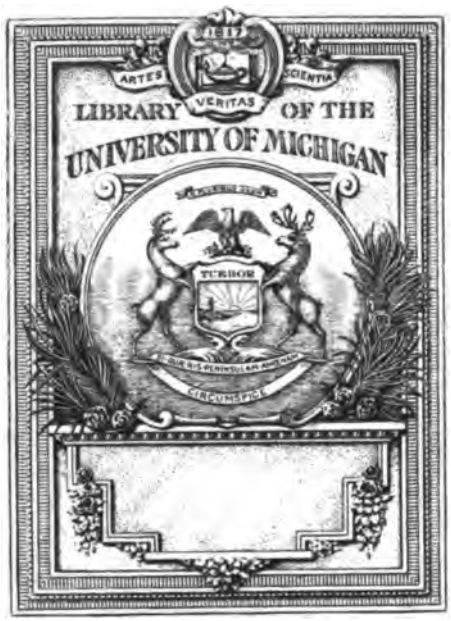
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JAMES B. ANGELL.

FIFTY-NINTH ANNUAL REPORT

OF THE

SUPERINTENDENT OF PUBLIC INSTRUCTION

OF THE

STATE OF MICHIGAN

WITH

ACCOMPANYING DOCUMENTS

FOR

THE YEAR 1895

BY AUTHORITY

LANSING
ROBERT SMITH PRINTING CO., STATE PRINTERS AND BINDERS
1896

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LETTER OF TRANSMITTAL.

STATE OF MICHIGAN,
DEPARTMENT OF PUBLIC INSTRUCTION.
Lansing, July 1, 1896.

To His Excellency, JOHN T. RICH,
Governor of the State of Michigan:

SIR—In compliance with the provisions of law, I have the honor herewith to transmit through you to the Legislature, the annual report of the Superintendent of Public Instruction, together with the accompanying documents for the year 1895.

Very respectfully,
Your obedient servant,
HENRY R. PATTENGILL,
Superintendent of Public Instruction.

SUPERINTENDENT'S REPORT.

It is with no little pleasure that the Superintendent of Public Instruction is able to report another year of great progress and improvement in Michigan schools. The financial stringency and the continued low price of agricultural and mining products, has had a tendency in some localities to curtail the amounts appropriated for educational purposes; but the loyal manner and commendable spirit with which almost all of our communities have maintained the schools, is a just cause for increased pride in our State. The lack of remunerative employment and the rigid enforcement of our new and very effective compulsory school law, has caused a fine increase in the number of pupils enrolled. The teachers have given much more study to the science of teaching. Better methods are constantly coming into use. A spirit of improvement and an enthusiastic love for the work is more apparent. Ideals are placed higher, both by teachers and patrons. More careful academic preparation is made by candidates for teaching, and the means for self-culture and improvement are used far more than formerly. Machine methods are giving place to more intelligent and progressive ways.

This optimistic view does not come from a mere study of statistics in an office, or from an occasional visit to a few favored localities or to special kinds of schools. It comes rather from a general averaging of observations extending throughout the year, in nearly every part of our great State. Your Superintendent has visited country, city, and village schools by the hundreds. He has met with thousands of teachers in more than half the counties of the State. He has attended institutes, associations, fairs, school exhibits, flag raisings, school picnics, rallies and the like by the score. He has conversed with many of our school officers on the educational interests of their districts. In short, he has tried to ascertain the condition and trend of school matters by personal observation.

REGULARITY OF ATTENDANCE IN RURAL SCHOOLS.

The more careful and intelligent supervision of the rural schools by county commissioners, the more perfect classification and grading of rural pupils, the improvement in the quality of teachers, the educational revival brought on by school rallies, district associations, school exhibits, patrons and teachers' associations, have improved the regularity of attendance in our rural schools to a surprising degree. The eighth grade diplomas and promotion exercises have encouraged pupils to persevere in

their work, and to strive for more regularity in attendance and more thorough, accurate work. Perhaps the improvement of farms and the surplus of labor may account for some of the increased attendance and greater regularity; but it is doubtless true that the classification and promotion of pupils have shown both child and parent the folly of detention from school for trivial reasons, such as picking up chips, making soap or sugar, butchering, and visiting. While the statistics show but a slight per cent of gain, it means much in the number of pupils and days of attendance; better still, it shows that the tide is running in the right direction.

DISTRICT LIBRARIES.

Among the most valuable adjuncts to a good school is the library, and it is with much pleasure that an increase in the number of district libraries is reported, an increase of 50 per cent over last year. Great care should be taken in the selection of the books. No novice should have a voice in so important a matter. Let teachers and district officers feel free to consult the list sent out by the department, when the purchase of a library is contemplated. The books chosen should be those which are especially helpful to pupils in their school work, volumes that supplement the history, geography, and literature lessons being first obtained. Let the county school commissioner keep close watch over the matter, and do all possible to prevent the squandering of library money for a worthless or positively injurious set of books. Commissioner Winston of Clinton county is trying an experiment of circulating the district libraries throughout the township; that is, after the district has read the library, say for four months, it is exchanged with another district and another set of books secured. The experiment will be watched with great interest.

Some of our sister states, by appropriating $10 from the State Treasury to each district that contributes a like amount for a library, encourage and greatly stimulate the formation of libraries. Is it hoping too much to look forward to the time when Michigan shall be equally liberal?

DECORATION OF SCHOOL GROUNDS AND BUILDINGS.

What a pleasure one feels as he comes to a school ground neatly kept, well shaded with trees and beautified with flowers! Too frequently it is true that the bleakest, barrenest, most desolate spot in the district is the one where the girls and boys are being educated.

Of late years Arbor Day has been made the occasion to clean up the grounds, set out trees, and otherwise ornament school premises. This day has been of value not only in direct results, but in cultivating a care for trees and a taste for the proper ornamentation of grounds. Prof. Taft of the Agricultural College has been doing some excellent missionary work in this direction by a free distribution of flower seeds to the first ten schools of each county whose teacher applied for the seeds and promised to plant and care for them. Several hundred availed themselves of this opportunity, and most encouraging reports have already been received.

Neat and pretty surroundings, however, only give promise of what may be found in the house. How delightful it is for the visitor to find a school room with clean floor, freshly kalsomined or papered walls, a

polished stove and pipe, well kept apparatus, well used library, and fine pictures upon the walls, among them pictures of Washington or Lincoln, Longfellow or Whittier. A tidy and artistically decorated room is an education in itself. How different the surroundings of such an one from the condition of one visited during the year in a rich and beautiful district whose school had been supported for two years past on the funds derived from the primary money and mill tax. The corner lot was as bare of trees or shrubbery as a cyclone swept hill-top. The little old school house blinked forth from its decayed old clapboards like a relic from No-Man's Land. The desks were of the old fashioned box style, and carved by the jack knife manual training classes of forty years. The rusty old stove tottered to its fall on three legs and a broken brick. A crooked poker propped up the stove door; and the rickety stove pipe, as guiltless of blacking as it was guilty of smoking, in snake fence contortions zigzagged its hazardous way to the chimney hole just clearing the heads of the big boys. It is safe to say that on the smoke besmeared and dust begrimed wall were the shadowgraphs of every lath, studding, joist, post, or other timber in the skeleton of the old hulk. No kalsomine or wall paper, no whitewash or water, had touched that wall for twenty years. Not a picture nor curtain, no dictionary, map, globe, chart, or library was on hand to aid in the education of the thirty boys and girls from those thriving and beautiful country homes. Would that this condition of affairs had been due to the poverty of the district! But no such kindly excuse could hold; it was due solely to thoughtless indifference, blighting stinginess, or supreme selfishness, perhaps to a combination of these causes. A ride of two miles brought to view the school house of a sparsely settled and much smaller district. Its people were taxing themselves heavily to maintain a good school. The house was small and old fashioned, but was closely acquainted with paint. The yard was decorated with shade trees, the house surmounted by a floating flag. The ceiling of the room was low, but it and the walls were white and clean. Curtains shaded the windows, and modern seats fitted the anatomy of happy pupils. Pictures of Lincoln and Longfellow under the folds of small flags, lent inspiration. The stove, pipe, and even the poker, were polished to a turn. Dictionary, maps, and library, were on hand ready for use. Can any one for a moment doubt which of these two houses presented the better conditions for the education of our future citizens? These are but types. Happily there are more districts with the liberal spirit of the latter than of the narrow, illiberal kind. That there is even one of the first kind described, is cause for renewed effort on the part of good citizens to spread the gospel of a better educational sentiment.

TOWNSHIP AND DISTRICT RALLIES.

In every instance where the county school commissioner has organized local teachers' meetings in townships or districts, the result has been eminently satisfactory. Teachers and patrons have met to discuss educational matters of common interest, with a better understanding as the result; they then work harmoniously in the education of the child. Some districts have been entirely revolutionized. Latent school interest has been aroused, the teacher has been cheered, the pupils have felt the encouragement, and the educational dollars have been made more effective.

COUNTY ASSOCIATIONS.

Every well conducted county association is a source of power to the teaching force. By means of these organizations during the year many experienced educators have been brought in contact with the teachers who, thus inspired and encouraged, have found the work of the year much more pleasant and profitable. Then, too, the mutual help derived from meetings with zealous fellow workers, is of no inconsiderable worth in up-building the profession of teaching.

TEACHERS' INSTITUTES.

During the past year there have been held eighty teachers' institutes in seventy-four different counties. The attendance upon these institutes has increased very greatly within the past few years, the enrollment for the current year being 638 more than that reported for any previous year.

As a rule, institute workers have seemed to put more of life and enthusiasm into the work. Practical, helpful suggestions are given, true ideals are held forth, and broader and better insight into the true work of the teacher is given.

The inspiration institutes spoken of in our last report, have grown in popularity and seem to meet the demands of populous districts and of counties where it is felt that academic instruction and details of method are not so much needed as revival of spirit and grasp of principles. By means of these institutes many of our teachers are introduced to some of the greatest educators of our country, and a great stimulus has come from their magnetic influence.

CHILD STUDY.

Our State committee on child study work has prepared a very helpful and suggestive manual, which is published in this report and has also been issued in pamphlet form for teachers and those especially interested in this important and just now most prominent educational topic. The work in this State has been of a very practical and helpful kind. The mothers' meetings have aided in the solution of many very knotty problems. The examination of the temperament and the physical faculties of pupils, has resulted in helping many a child who has been heretofore hampered with defective sight or hearing, all unknown to pupil, parent, or teacher. The teacher who takes up the study has a greater sympathy, a kindlier spirit, and even more intelligent method in training the individual pupil. Many teachers are now at work on this subject, and the study of psychology has changed from the mechanical conning of abstruse terms to the interesting study of the mind, as found in a laboratory so filled with charming specimens.

COMPULSORY SCHOOL LAW.

Probably the most helpful bit of school legislation for some years past is the compulsory school law enacted by the legislature of '95. Its workings have most gloriously fulfilled the predictions of its supporters, and in most part it has been enforced with good sense and sufficent leniency. It has had the effect of bringing into school thousands of children who

before this had bid defiance to law and were growing up in ignorance. In nearly every city and village it may now be said that no child dare be found on the street when school is in session, unless he has an excuse from the proper authorities. In some places enforcement of the law brought in so many pupils that a halt had to be called until more school room could be provided. To be sure some ignorant, obstinate, or unpatriotic citizen may have been somewhat severely handled; but in every instance the law has been sustained and one example, as a rule, has been all that was necessary. It is safe to say that no law upon the statute books is more heartily indorsed by good citizens. Nevertheless, it should be said here that some few cities and localities have so far manifested a criminal carelessness in utterly neglecting to carry out the plain provisions of the act. Such communities cannot long continue in this course; public sentiment is too strong and the general welfare too much endangered thereby to permit an open and flagrant violation of a law so just and necessary. It has been thought best to permit this violation to pass unnoticed, until the law was tested and its provisions fully known. With the beginning of the next school year, however, every district, whether rural or otherwise, should prepare to carry out the provisions of the law in good faith.

Mr. Wyman, the efficient truant officer of Bay City, testifies to the excellent work of the law in decreasing the number of vagrants and in materially lessening the number of young girls and boys who roam the streets at night, thus decreasing, by a large per cent, the number of arrests made necessary among this class. Supt. Hathaway of Flint is equally sure that the enforcement of the law has aided very greatly in reducing the number of petty crimes among the hoodlums of that city, as the following letter will show:

Superintendent of Public Instruction, Lansing, Mich.:

DEAR SIR:—I desire to call your attention to what seems to me to be a legitimate outgrowth of our attempt to enforce the new truant law in the city of Flint.

Certainly the past winter has been one as well calculated to incite boys and girls to criminal acts as any we have experienced for several years. Notwithstanding this fact the business men of the city inform me that there has never been a winter in the history of Flint in which there has been so little disturbance of the peace by juveniles as the present. A recent examination of the statistics in the office of the county agent of corrections and charities reveals the fact that, since we began to enforce the truant law, October 1, 1895, the number of arrests of juvenile disorderly persons is 50 per cent less than the average number of arrests of the same class of persons for the corresponding months of the three preceding years. It is further shown by the same records that since the first of last October no girl has been sent from the city of Flint to the Girls' Industrial School at Adrian. During the same time but one boy has been sent to the Boys' Industrial School at Lansing. The boy thus sent was convicted on the charge of truancy. Since the first of last October no boy or girl in Flint has been fined or imprisoned for being a juvenile disorderly person.

In my opinion the rigid enforcement of the truant law, together with the maintenance of the ungraded school separate from the other public schools of the city, will largely account for the above described records.

Yours respectfully,
F. R. HATHAWAY.

Flint, Mich., April 24, 1896.

Testimony like this might be multiplied, but enough has been cited to show the benefits of the law. It would be well if that portion of the statute applicable to the rural schools were as satisfactory as that for the city schools. The law should also be made more definite in its classifica-

tion concerning cities that must support a truant officer. Villages having no organized police force should come under the provisions of the law framed for cities.

STATE SPELLING CONTEST.

Probably nothing pertaining to schools within recent years has created quite so much interest, at least in rural schools, as the State spelling contest. At least twenty-five counties have taken hold of the matter with great zest. The 800 commonly misspelled words have been studied at school and at home, until many and many a pupil could spell every word. Students never before much interested in school have become so, their interest in the spelling contest having grown to an interest in all school subjects. The township contests have drawn large audiences and the library funds have in many cases been encouragingly augmented by a small admission fee. Herewith is given the list of successful contestants in each county, as forwarded to the department by commissioners.

Counties.	Name of Contestant.	Postoffice Address.	Rank.
Van Buren	Shirley D. Ward	Decatur	1
Berrien	Louise Northam	Buchanan	2
Alcona	Alice M. Churchill	Black River	3
Isabella	Mary Trainor		4
Branch	Fred Bremer		5
Montcalm	Pearl N. Hanifin		6
Saginaw	Anne Johnson	Blumfield	7
Shiawassee	Ray W. Dickinson	West Haven	8
Livingston	Clara E. Davis	Locke	9
Lake	Ethel Randall	Chase	10
Otsego	Lulu Chapin	Vanderbilt	11
Jackson	William Carr		12
Eaton	Zella Hurlburt	Dimondale	13
Monroe	Cecile J. May		14
Ionia	May Fowler	Orleans	15
Ionia	Mildred Fink	Lake Odessa	16
Allegan	Maude McOmber	Monterey	17
Mason	Blanche Sheldon	Scottville	18
Montmorency	F. E. Eckenfels	Lewiston	19
Keweenaw	Toney Sibilsky	Eagle River	20
Arenac	Martha Roe	Arenac	21
Antrim	Lyda Mills		22

The ranking given above was gained on the special list sent out from this department, so that Misses Ward, Northam, and Churchill rank as the champion spellers of the State.

Many city schools took up the test with most excellent results, although they did not enter the lists for either county or State contests. The counties of the State not yet bound by the "spell," should put themselves under its influence. Those commissioners who have tried it are without exception greatly pleased with the results.

EXAMINATION QUESTIONS.

In the first report published by the present Superintendent of Public Instruction it was stated that the growth of population in Michigan and the increase in means of education, warranted a gradual, but pronounced

raise in the requirements of teachers. Notice was given that the questions would be made somewhat more difficult, and the law was so changed that teachers could not teach for life on the lowest grade of certificate granted by the State. In accordance with this policy questions were prepared. As was to be expected, the advance met with bitter opposition among certain classes and in comparatively few localities. When was there ever a reform that was not combatted by conservatives? However, to the credit of the State of Michigan be it said that, as soon as the people understood the new movement and saw it stripped of the misconstruction and falsehoods with which it had been clothed by designing politicians and unprogressive incompetents, they sustained the advanced position taken by the department. The results of three years of this policy are such as to convince the most skeptical that it was a move in the right direction. The rural schools especially have received the benefit of a better prepared, more mature, and more broadly educated class of teachers. Not that new ones have in every case come in, but old ones have been stimulated to prepare themselves better. Nearly as many second grade certificates have been granted during the past year as in any two preceding years since the present system of county examinations was adopted. The increase over last year is 630, or 53+ per cent. Another pleasing fact comes from the statistics of examination. The number of special certificates granted has been reduced from 1078 in 1892 to 804 in 1895. The decrease in the past year has been 366, or about 31 per cent. In all the older and well settled counties of the State there is no need of a special certificate. It is of no credit either to the board that grants it, or the person who holds it.

EXAMINATIONS FOR CITY TEACHERS.

Most cities and villages have complied with the law requiring certain examination of city teachers or of applicants for positions in city schools. Few indeed fail to see the justice and necessity of such a law. The cities as well as the country draw public money for the maintenance of their schools; it stands to reason, therefore, that the State should have some authority in determining to whom this fund should be paid. It is possible, in a system of city schools, that teachers may be selected for many other reasons besides competency. To protect pupils, there must be a strict regulation concerning the qualification of teachers. It is also of great benefit to the teaching corps that such a law be carried out. The worthy teacher is protected by it; no law should be made to protect unworthy ones. Sympathy, politics, sect, "pull," should play no part in the choice of teacher. It is not understood that the teacher need be examined year after year in the same studies, but every teacher should forever be a student.

TEACHING AS A PROFESSION.

A new table appears in this report, showing the years of service of teachers in city and village schools, also the academic and professional training of teachers now employed in such schools. The table is an interesting one, though not particularly flattering to us. How few comparatively have received normal or college training! In some instances a truly fine showing is made, and a goodly share of the teachers have

received a proper training for their work. Has not the time come when boards of education in cities and villages may demand of all applicants either experience in teaching, or professional training in normal school or training class?

THE CENTRAL MICHIGAN NORMAL SCHOOL.

It is to be regretted that the last legislature did not make an appropriation with which to carry on the work of the new normal school at Mt. Pleasant. The people of that enterprising city have given most liberally of their funds to maintain the school there during the year. Prof. Bellows and his assistants have labored zealously and quite successfully to start the new institution on right lines and to lay a good foundation for future growth. When one considers the disadvantages under which the start was made, the attendance has been encouraging. It is hopefully expected that the next legislature will, early in the session, make adequate provision for the equipment and support of the school.

THE STATE NORMAL SCHOOL.

This famous and justly popular school has carried on its work with vigor and success. It has maintained its number, in spite of the depression in business, and a gratifying fact in this connection is that the preparation of the students who enter is better than ever before. Members of graduating classes readily secure positions; and this, too, is a hopeful sign of the times.

THE MICHIGAN AGRICULTURAL COLLEGE.

The management of this institution has been quite severely criticized during the year, and certain changes in its courses of study and in its administration have been suggested. Believing that the real merits of the school and the real defects in its management were not fully known nor impartially considered, a board of visitors was appointed by the Superintendent of Public Instruction to make a careful and candid investigation and report the result to the department. The committee's report is given in full on pages 398–400 of this report, and is certainly worthy of very careful consideration by the public as well as by the Board of Agriculture. With the excellent equipment which the college possesses, its able and devoted instructors, its various courses of study and remarkably low cost of tuition and living, this school should enroll at least 1,000 students.

THE UNIVERSITY OF MICHIGAN.

No one thing has rendered Michigan more famous than has the excellent standing of her great University. It is the crowning glory of our educational system, and its influence upon that system has been most beneficial and far-reaching. The boy or girl may start on an educational career in the log school house and, without a jog in that career, graduate with honors from the University. The number of students now in attendance is larger than ever before and very nearly reaches the 3,000 mark. Mere growth in numbers, however, would give little ground for congratulation; but when coupled with the fact that thoroughness of work and

additional requirements have accompanied this growth, the State has reasonable grounds for a feeling of pride and satisfaction. One thought should dominate the teachers of the University as well as those of every grade of school, viz., the prime purpose of the school is character building. The products of the school should be model citizens, honest, intelligent, unselfish, patriotic, sound in body, strong in thought, noble in ideals. Teachers who do not by precept and example teach these things, have no place in the faculty of any school.

READING CIRCLES.

Our State Teachers' Reading Circle continues to be a most helpful and popular ally in the cause of education. The new books selected for the coming year are King's "School Interests and Duties," and Skinner's "Reading in Folk Lore" or Watkins' "American Literature and Select American Classics." For full particulars concerning the work, address the secretary, Commissioner C. E. Palmerlee of Lapeer.

The Pupils Reading Circle has also aided very materially in placing many excellent books before our youth; and by coöperation and organization, it cultivates a reading habit. The books selected for the coming year are as follows:

2nd Grade—Lane's Stories for Children, Johonnot's Friends in Feathers and Fur.

3rd Grade—Baldwin's Fairy Stories and Fables, Johonnot's Grandfather Stories.

4th Grade—Eggleston's Stories of Great Americans for Little Americans, McGuffey's Familiar Animals and their Wild Kindred.

5th Grade—Eggleston's True Stories of American Life and Adventure, Johonnot's Curious Fliers, Creepers, and Swimmers.

6th Grade—Baldwin's Old Greek Stories, Scribner's Geographical Reader.

7th Grade—Herrick's Plant Life (Curious Forms), Johonnot's Stories of Other Lands.

8th Grade—Johonnot's Ten Great Events in History, Dickens' Child's History of England.

Pupils are especially delighted with Eggleston's "Stories of Great Americans for Little Americans," and in the reading of such books true patriotism is inculcated. By leading pupils to join this circle and wear its beautiful and patriotic button badge, much more of interest in reading is aroused. As the additional expense is nothing, there seems to be no reason why nearly all the pupils of at least the intermediate and higher grades should not enroll. For definite particulars and circulars of information address the State secretary, Supt. J. W. Simmons of Owosso, Mich.

DENOMINATIONAL COLLEGES AND PRESIDENTS.

Of no mean value in the educational forces of Michigan are its excellent denominational schools with their earnest and able faculties. The fact that the boys and girls of our State have close at hand the means of acquiring a generous and liberal education, is of the most striking advantage. Headed by our University, the institutions for higher learning in Michigan are certainly of a character to challenge admiration. In order to call attention to these schools more definitely and also to pre-

serve their history, sketches of the colleges and their present presidents are given in this volume.

PUBLIC LIBRARIES.

"Schools and the means of education shall forever be encouraged." Thus says the great Ordinance of 1787. One of these means and by no means the least, is the public library. Through private munificence in some places, public appropriations in others, and a combination of these factors in still others, there are a very considerable number of free public libraries in Michigan. A very able society exists in the State among librarians and those more immediately interested in the administration of library affairs. As a significant part of a State's educational system, it seemed to the State Superintendent that a portion of this report should be given to a sketch of these libraries, that there should be something of a history of these institutions recorded among the other educational factors. Perhaps the attention thus called to the libraries, may lead to the founding of others and the enlargement and possibly greater use of those already in existence.

HIGH SCHOOL COURSES.

The relationship that has grown up between our high schools and the University and colleges, has unquestionably been of great advantage to the former in elevating their standards and unifying their work. Nothing should be done to destroy this relationship. There is danger, however, that in attempting to do all the work required for recognition by the University, some of our schools may attempt too much and permit some superficial work in the fundamentals to pass unchallenged.

It is with great pleasure that reference is made to a revival in the study of United States history. The completion of this study in the eighth grade is exceedingly unfortunate; it should have a place in every high school course. The eighth grade pupil cannot possibly possess maturity of judgment sufficient to pursue the study as it should be by a person who is to be a citizen of the Republic. A review of other branches of earlier years would also save humiliation of high school graduates at teachers' examinations, and fit such graduates better to teach the topics of arithmetic, grammar, and geography.

FREE TEXT BOOKS.

There are now in this State upwards of 400 districts that have for a longer or shorter period been working under the free text book plan. Among these are the cities of Benton Harbor, Bessemer, Bay City, Detroit, Grand Haven, Hastings, Marine City, Muskegon, Saginaw, E. S., Saginaw, W. S. The unanimous testimony from these districts is decidedly in favor of this system. A general adoption of the plan by the State would secure all the benefits of State uniformity with none of its disadvantages. The subject is a proper one for careful consideration by the legislature at its next session.

TOWNSHIP UNIT SYSTEM.

Among the many educational factors that have been much discussed and considered by many of our States, the township unit school district

has perhaps occupied as large a share as any. The present Superintendent of Public Instruction believes the plan a practicable and helpful one; he has, however, never considered it the only educational factor, nor in fact the chiefest one. Recognizing that a majority of the rural communities of the State oppose the plan, and realizing that such reform, if it come at all, must come slowly through an education of the people, the time and energy of the Superintendent has been exerted almost wholly upon other reforms, those which appeared to be attainable and most beneficial. In the mean time the department has begun a series of investigations and comparisons between our system and the systems of other States working under the township district, and the result of this careful and impartial investigation will be given fully in the next volume sent out by this department.

SCHOOL APPARATUS.

There is a certain amount of apparatus as essential to the proper and economical conduct of a school as of a farm or shop. During the first year of the present administration of this office, a large number of councils with school officers and patrons was held in all portions of the State; and among the questions discussed at each of these meetings was the question as to what constituted necessary school apparatus. The average of opinions given at these councils was taken, and the result expressed in a bill which was made a law by the legislature of '95. This law provided for the purchase by the director of some of the needed appliances for the proper conduct of a school. The amount asked for was very reasonable, and in most cases the result has been very satisfactory. An occasional school officer enters complaint, because the law compelled the district to make the purchase. However, such officers should be ashamed to acknowledge that the district had before been so derelict in its plain duty as to fail in providing the dictionary, maps, etc., for the proper equipment of the school.

One of the prettiest and most inspiring sights to a true citizen is the flag flying over the school house. Many travelers through Michigan have mentioned the appropriateness and beauty of the flag floating over the groups of happy children. The dedicating of flags and raising of flagstaffs, have been made the occasion of many patriotic celebrations. School children have more than ever been taught the lessons of the flag and the meaning it has for the youth of America. We are yet far from the goal in this particular. Intelligent citizenship should be taught in every school from kindergarten up through the University. A pure love of country and a desire to live for it, if need be to *die* for it, should be inculcated with nearly every lesson of history, geography, civil government, and reading. No pupil should go from the school who cannot repeat the words of "America," with a full comprehension of every sentence. Our country has need of patriotic citizens as much as it ever did, citizens patriotic enough to give a portion of their time toward solving unselfishly some of the knotty problems requiring solution. Let the child be taught to place right and duty foremost. Let profit and policy give place to honor and principal. The most practical good our schools can do for our land, is to give it truly patriotic citizens.

HENRY R. PATTENGILL,
Superintendent of Public Instruction.

STATISTICAL TABLES.

STATISTICAL TABLES.

TABLE I.

Comparative summary of statistics for the years 1894 and 1895.

Items.	1894.	1895.	Increase.	Decrease.
Districts and schools.				
Number of townships and independent districts reporting	1,277	1,283	6	.....
Number of graded school districts	597	623	26	.....
Number of ungraded school districts	6,555	6,536	.....	19
Total	7,152	7,159	7	.....
Number of township unit districts	76	89	13	.....
School census of graded school districts	392,864	397,689	4,825	.....
School census of ungraded school districts	303,370	302,139	.....	1,231
Total	696,234	699,828	3,594	.....
Enrollment in graded schools	258,779	264,626	5,847	.....
Enrollment in ungraded schools	210,200	212,058	1,858	.....
Total	468,979	476,684	7,705	.....
Percentage of attendance in graded schools	65.8	66.5	.7	.....
Percentage of attendance in ungraded schools	69.2	70.2	1.	.....
Percentage for the State	67.3	68.1	.8	.....
Number of districts reporting having maintained school	7,069	7,078	9	.....
Average duration in months of graded schools	9.36	9.37	.01	.....
Average duration in months of ungraded schools	7.73	7.77	.04	.....
Average for the State	7.86	7.91	.05	.....

TABLE I.—CONTINUED.

Items.	1894.	1895.	Increase.	Decrease.
Number of private and select schools reported	375	378	3	
Number of male teachers in such schools	343	339		4
Number of female teachers in such schools	700	756	56	
Estimated number of pupils attending such schools	44,842	43,636		1,206
Teachers and their employments.				
Number of teachers necessary to supply graded schools	5,262	5,532	270	
Number of teachers necessary to supply ungraded schools	6,563	6,549		14
Total	11,825	12,081	256	
Number of male teachers employed in graded schools	798	847	49	
Number of male teachers employed in ungraded schools	2,681	2,787	106	
Total	3,479	3,634	155	
Number of female teachers employed in graded schools	4,654	4,866	212	
Number of female teachers employed in ungraded schools	8,057	7,513		544
Total	12,711	12,379		332
Whole number of teachers employed in graded schools	5,452	5,713	261	
Whole number of teachers employed in ungraded schools	10,738	10,300		438
Total	16,190	16,013		177
Average number of months taught by males in graded schools	9.17	9.11		.06
Average number of months taught by males in ungraded schools	5.16	5.33	.17	
General average	6.08	6.21	.13	
Average number of months taught by females in graded schools	9.42	9.27		.15
Average number of months taught by females in ungraded schools	4.74	5.08	.34	
General average	6.45	6.73	.28	
Total wages of male teachers in graded schools	$579,343 38	$589,031 85	$9,688 47	
Total wages of male teachers in ungraded schools	436,405 87	453,124 26	16,718 39	
Total	$1,015,749 25	$1,042,156 11	$26,406 86	

TABLE I.—CONTINUED.

Items.	1894.	1895.	Increase.	Decrease.
Total wages of female teachers in graded schools	$1,896,672 37	$1,983,700 80	$87,028 43	.....
Total wages of female teachers in ungraded schools	982,842 57	942,743 22	.....	$40,099 35
Total	$2,879,514 94	$2,926,444 02	$46,929 08	.....
Aggregate wages of all teachers in graded schools	$2,476,015 75	$2,572,732 65	$96,716 90	.....
Aggregate wages of all teachers in ungraded schools	1,419,248 44	1,395,867 48	.....	$23,380 96
Total	$3,895,264 19	$3,968,600 13	$73,335 94	.....
Average monthly wages of male teachers in graded schools	$79 12	$76 32	.....	$2 80
Average monthly wages of male teachers in ungraded schools	31 53	30 50	.....	1 03
Average monthly wages of male teachers in all schools	$48 00	$46 17	.....	$1 83
Average monthly wages of female teachers in graded schools	$43 24	$43 91	$0 67	.....
Average monthly wages of female teachers in ungraded schools	25 71	24 67	.....	$1 04
Average monthly wages of female teachers in all schools	$35 08	$35 09	.....	$0 01
Examination and certification of teachers.				
Number of public examinations held	417	396	.....	21
Number of applicants for regular certificates	15,842	16,626	784	.....
Number of first grade certificates granted	155	125	.....	30
Number of second grade certificates granted	551	1,181	630	.....
Number of third grade certificates granted	8,799	8,561	.....	238
Whole number of regular certificates granted	9,505	9,867	362	.....
Number of applicants for special certificates	1,483	1,178	.....	305
Number of special certificates granted	1,170	804	.....	366
Number of teachers who held State or Normal School certificates	498	587	89	.....
Whole number of legally qualified teachers	11,677	11,914	237	.....
Number licensed without previous experience in teaching	2,261	2,357	96	.....
Number of applicants who had attended State Normal School	1,337	1,201	.....	136
Number of applicants who had attended institutes during the year	4,272	5,305	1,033	.....
Number making teaching a permanent profession	5,333	5,786	453	.....
School property.				
Number of frame school houses	5,987	6,025	38	.....
Number of brick school houses	1,361	1,397	36	.....
Number of stone school houses	74	74	.....	.....
Number of log school houses	347	339	.....	8
Total	7,769	7,835	66	.....

TABLE I.—CONTINUED.

Items.	1894.	1895.	Increase.	Decrease.
Whole number of sittings in school houses	584,837	594,904	10,067	
Estimated value of property in graded school districts	$12,104,161 00	$12,506,423 00	$402,262 00	
Estimated value of property in ungraded school districts	4,480,238 00	4,260,459 00		$219,779 00
Total	$16,584,399 00	$16,766,882 00	$182,483 00	
Number of districts reporting dictionaries in schools	5,478	5,712	234	
Number of districts reporting globes in schools	3,166	3,486	320	
Number of districts reporting maps in schools	4,246	4,287	41	
Financial.				
Amount of one mill tax received	$631,835 74	$630,621 86		$1,213 88
Amount of primary school interest fund received	1,014,383 86	882,081 20		132,302 66
Amount received from non-resident tuition	72,549 67	75,890 41	3,340 74	
Amount received from district taxes	3,699,679 12	3,831,252 69	131,573 57	
Amount received from all other sources	774,530 91	453,104 09		321,426 82
Total net receipts	$6,192,979 30	$5,872,950 25		$320,029 05
Amount received from loans	424,975 47	480,794 42	$55,818 95	
Balance on hand from preceding year	1,357,179 09	1,559,891 09	202,712 00	
Total resources including amount on hand from preceding year	$7,975,133 86	$7,913,635 76		$61,498 10
Amount paid male teachers	$1,014,502 83	$1,040,746 07	$26,243 25	
Amount paid female teachers	2,874,579 76	2,922,335 99	47,756 23	
Amount paid for building and repairs	735,503 09	976,440 49	240,937 40	
Amount paid for interest on loans	113,723 97	123,334 11	9,610 14	
Amount paid for all other purposes	1,353,779 97	1,365,146 40	11,366 43	
Total net expenditures	$6,092,089 61	$6,428,003 06	$335,913 45	
Amount paid on bonded indebtedness	321,477 60	318,810 55		$2,667 05
Balance carried to next year	1,561,566 65	1,166,822 15		394,744 50
Total expenditures including balance on hand	$7,975,133 86	$7,913,635 76		$61,498 10
Total expenditures in graded school districts	$4,160,197 51	$4,587,244 34	$427,046 83	
Total expenditures in ungraded school districts	1,931,892 10	1,840,758 72		$91,133 38
Total net expenditures	$6,092,089 61	$6,428,003 06	$335,913 45	
Total bonded indebtedness of districts	$2,065,994 68	$2,009,540 28		$56,454 40
Total floating indebtedness of districts	188,781 68	230,879 62	$42,097 94	
Total indebtedness	$2,254,776 36	$2,240,419 90		$14,356 46
Total indebtedness in graded school districts	$2,018,274 26	$2,004,988 39		$13,285 87
Total indebtedness in ungraded school districts	236,502 10	235,431 51		1,070 59
Total indebtedness	$2,254,776 36	$2,240,419 90		$14,356 46

TABLE I.—CONTINUED.

Items.	1894.	1895.	Increase.	Decrease.
Total amount due the districts	$240,826 43	$290,684 44	$49,858 01	
School libraries.				
Number of townships reporting libraries	436	484	48	
Number of districts reporting libraries	1,248	1,753	505	
Total number of libraries	1,684	2,237	553	
Number of volumes in township libraries	167,801	160,140		7,661
Number of volumes in district libraries	481,202	528,302	47,100	
Total number of volumes in all libraries	649,003	688,442	39,439	
Amount of taxes voted for township libraries	$3,739 70	$3,916 23	$176 53	
Amount received from county treasurers for township libraries	11,497 66	9,842 74		$1,654 92
Number of townships diverting money to general school purposes	555	351		204
Number of townships forfeiting library moneys	210	376	166	
Amount paid for support of township libraries	$18,355 85	$16,027 04		$2,328 81
Amount paid for support of district libraries	111,007 45	94,531 56		16,475 89
Teachers' institutes.				
Number of State institutes held	76	79	3	
Number of men enrolled at such institutes	2,021	2,291	270	
Number of women enrolled at such institutes	7,050	7,418	368	
Total enrollment	9,071	9,709	638	
Amount received from State Treasurer for such institutes	$1,796 65	$1,810 36	$13 71	
Amount received from county treasurers for such institutes	11,243 90	10,762 16		$481 74
Total amount expended	$13,040 55	$12,572 52		$468 03
Miscellaneous.				
Number of counties reporting county teachers' associations	64	65	1	
Amount per diem received by examiners	$13,407 04	$14,680 54	$1,273 50	
Amount paid commissioners of schools	69,255 00	69,245 00		$10 00
Total compensation	$82,662 04	$83,925 54	$1,263 50	

TABLE I.—CONCLUDED.

Items.	1893.	1894.	Increase.	Decrease.
Amount allowed by supervisors for expenses of county boards	$6,025 62	$7,349 93	$1,324 31	
Amount paid and due township inspectors for services	14,555 55	15,572 37	1,016 82	
Amount paid chairmen of board of inspectors	32,549 62	21,298 12		$11,251 50
Total amount of primary school interest fund apportioned	$1,021,001 47	$1,000,312 06		$20,689 41
Rate per capita, May apportionment	$0 83	$0 61		$0 22
Rate per capita, November apportionment	68	83	$0 15	
Rate per capita for year	$1 51	$1 44		$0 07
Total number of U. S. flags in school districts	1,854	3,307	1,453	

TABLE II.

Twentieth and twenty-first semi-annual apportionment of the primary school interest fund.

Counties.	Apportionment May 10, 1895, rate per capita 61 cents.			Apportionment Nov. 10, 1895, rate per capita 83 cents.		
	Whole No. of children.	No. included in apportionment.	Amount apportioned.	Whole No. of children.	No. included in apportionment.	Amount apportioned
Totals	696,234	694,660	$424,198 62	696,220	694,662	$576,573 44
Alcona	1,813	1,781	$1,086 41	1,838	1,806	c $1,544 47
Alger	428	428	261 08	428	428	355 24
Allegan	12,273	12,263	7,480 43	12,273	12,263	10,178 29
Alpena	6,590	6,553	3,997 33	6,590	6,553	5,438 99
Antrim	3,879	3,879	2,366 19	3,879	3,879	3,219 57
Arenac	2,443	2,435	1,485 35	2,443	2,435	2,021 05
Baraga	1,373	1,373	837 53	1,373	1,373	1,139 59
Barry	7,149	7,149	4,360 89	7,149	7,149	5,933 67
Bay	21,945	21,885	13,349 85	21,945	21,885	18,164 55
Benzie	2,500	2,500	a 1,828 51	2,500	2,500	2,075 00
Berrien	13,386	13,386	8,165 46	13,386	13,386	11,110 38
Branch	6,949	6,938	4,232 18	6,949	6,938	5,758 54
Calhoun	12,444	12,444	7,590 84	12,444	12,444	10,328 52
Cass	6,015	6,015	3,669 15	6,015	6,015	4,992 45
Charlevoix	3,487	3,408	2,078 88	3,487	3,408	2,828 64
Cheboygan	4,835	4,766	2,907 26	4,835	4,766	3,955 78
Chippewa	4,262	4,262	2,599 82	4,262	4,262	3,537 46
Clare	2,359	2,359	1,438 99	2,359	2,359	1,957 97
Clinton	7,827	7,827	4,774 47	7,827	7,827	6,496 41
Crawford	745	731	445 91	745	731	606 73
Delta	5,044	4,967	3,029 87	5,039	4,962	d 4,115 41
Dickinson	3,865	3,865	2,357 65	3,865	3,865	3,207 95
Eaton	9,204	9,204	5,614 44	9,204	9,204	e 7,560 12
Emmet	2,920	2,914	1,777 54	2,920	2 914	2,418 62
Genesee	11,296	11,296	6,890 56	11,296	11,296	9,375 68
Gladwin	1,525	1,437	876 57	1,525	1,437	1,192 71
Gogebic	3,308	3,271	1,995 31	3,308	3,271	2,714 93
G'd Traverse	4,957	4,941	3,014 01	4,957	4,957	f 4,124 07
Gratiot	9,208	9,208	5,613 88	9,208	9,208	7,638 49
Hillsdale	8,265	8,265	5,041 65	8,265	8,265	6,859 95
Houghton	14,046	14,043	8,566 23	14,046	14,043	11,655 69
Huron	12,124	12,124	7,395 64	12,124	12,124	10,062 92
Ingham	11,968	11,968	7,312 68	11,968	11,968	9,950 04
Ionia	10,111	10,111	6,167 71	10,111	10,111	8,392 13
Ioseo	4,049	3,976	2,425 36	4,049	3,976	3,300 08
Iron	1,450	1,446	882 06	1,450	1,446	1,200 18
Isabella	6,907	6,863	4,186 43	6,907	6,863	5,696 29
Isle Royal						
Jackson	12,813	12,813	7,815 93	12,813	12,813	10,634 79
Kalamazoo	11,510	11,473	6,998 53	11,510	11,473	9,522 59
Kalkaska	1,577	1,577	961 99	1,577	1,577	1,308 91
Kent	37,617	37,594	22,932 34	37,617	37,594	31,203 02
Keweenaw	896	896	546 56	896	896	743 68
Lake	1,737	1,723	1,051 03	1,737	1,723	1,430 09
Lapeer	9,443	9,400	5,734 00	9,443	9,400	7,802 00

TABLE II.—CONTINUED.

Counties.	Apportionment May 10, 1895, rate per capita 61 cents.			Apportionment Nov. 10, 1895, rate per capita 83 cents.		
	Whole No. of children.	No. included in apportionment.	Amount apportioned.	Whole No. of children.	No. included in apportionment.	Amount apportioned.
Leelanau	3,138	3,138	$1,914 18	3,138	3,138	$2,604 54
Lenawee	13,443	13,438	8,197 18	13,443	13,438	11,153 54
Livingston	5,820	5,820	3,550 20	5,820	5,820	4,830 60
Luce	561	561	342 21	561	561	465 63
Mackinac	2,198	2,190	1,335 90	2,198	2,190	1,817 70
Macomb	10,763	10,763	6,565 43	10,763	10,763	8,933 29
Manistee	8,692	8,666	5,286 26	8,692	8,666	7,192 78
Manitou	256	150	91 50	256	150	124 50
Marquette	12,642	12,642	7,711 62	12,642	12,642	10,492 86
Mason	5,980	5,964	3,638 04	5,980	5,964	4,950 12
Mecosta	6,974	6,812	4,155 32	6,974	6,812	g 5,658 72
Menominee	7,221	7,221	4,404 81	7,221	7,221	5,993 43
Midland	4,333	4,324	2,637 64	4,333	4,324	3,588 92
Missaukee	2,153	2,138	1,304 18	2,153	2,138	1,774 54
Monroe	11,115	11,078	6,757 58	11,115	11,078	9,194 74
Montcalm	10,924	10,924	6,663 64	10,924	10,924	9,066 92
Montmorency	706	698	b 578 29	706	698	579 34
Muskegon	13,357	13,348	8,142 28	13,357	13,348	11,078 84
Newaygo	6,137	6,102	3,722 22	6,137	6,102	5,064 66
Oakland	11,092	11,092	6,766 12	11,092	11,092	9,206 36
Oceana	5,375	5,375	3,278 75	5,375	5,375	4,461 25
Ogemaw	1,775	1,766	1,077 26	1,775	1,766	1,465 78
Ontonagon	1,571	1,570	957 70	1,571	1,570	1,303 10
Osceola	5,720	5,713	3,484 93	5,720	5,713	4,741 79
Oscoda	375	368	224 48	375	368	305 44
Otsego	1,325	1,324	807 64	1,325	1,324	1,098 92
Ottawa	13,599	13,599	8,295 39	13,599	13,599	11,287 17
Presque Isle	1,780	1,654	1,008 94	1,780	1,654	1,372 82
Roscommon	465	453	276 33	465	453	375 99
Saginaw	27,886	27,886	17,010 46	27,886	27,886	23,145 38
St. Clair	18,129	18,129	11,058 69	18,129	18,129	15,047 07
St. Joseph	6,863	6,863	4,186 43	6,863	6,863	5,696 29
Sanilac	12,309	12,275	7,487 75	12,309	12,275	10,188 25
Schoolcraft	1,647	1,627	992 47	1,647	1,627	1,350 41
Shiawassee	9,455	9,455	5,767 55	9,455	9,455	7,847 65
Tuscola	11,391	11,355	6,926 55	11,391	11,355	9,424 65
Van Buren	9,248	9,248	5,641 28	9,248	9,248	7,675 84
Washtenaw	12,571	12,571	7,668 31	12,571	12,571	10,433 93
Wayne	94,451	94,379	57,571 19	94,451	94,379	78,334 57
Wexford	4,242	4,209	2,567 49	4,242	4,209	3,493 47

a Includes $303.51 deficiency in May and November, 1894.
b Includes $152.51 deficiency in May and November, 1894.
c Includes $28.06 deficiency in May, 1895.
d Less $3.05 overpaid in May, 1895, for non-residents reported.
e Less $35.55 overpaid in May, 1895, for names (extra) reported.
f Includes $9.76 deficiency in May, 1895.
g Includes $4.76, amount due.

TABLE III.

General school statistics as reported by the school inspectors, for the year ending September 2, 1895.

Counties.	No. of townships and cities reporting.	Whole No. of school districts.	No. of districts that maintained school.	No. of graded school districts.	No. of children between five and twenty years of age.	No. of children between five and twenty years of age that attended school.	Whole No. of days of school.	No. of school houses.				Whole No. of sittings provided for in school houses.	Estimated value of school property.	Average No. months of school.
								Stone.	Brick.	Frame.	Log.			
Totals	1,283	7,159	7,078	623	699,828	476,684	1,132,520	74	1,397	6,025	339	594,904	$16,766,882	8.
Alcona	11	28	28	2	1,910	1,350	3,898	.....	.....	24	7	1,645	$16,077	7.
Alger	7	7	7	2	512	362	958	.....	1	8	7	454	13,740	6.8
Allegan	24	184	184	19	12,264	9,242	29,313	1	25	166	.....	13,167	206,702	8.
Alpena	8	27	25	3	6,799	3,225	3,370	.....	2	44	9	3,339	145,025	6.7
Antrim	15	71	71	5	4,038	3,165	10,497	.....	4	62	11	3,996	86,377	7.4
Arenac	11	34	31	4	2,502	1,677	4,586	.....	1	29	5	2,228	33,908	7.4
Baraga	5	5	5	2	1,572	910	830	.....	.....	12	2	995	20,500	8.3
Barry	17	148	147	5	7,091	5,952	23,869	.....	14	135	2	8,903	165,525	8.1
Bay	16	62	60	6	22,652	10,718	9,948	.....	14	66	2	10,893	431,565	8.3
Benzie	12	48	48	6	2,549	1,855	6,790	.....	1	49	.....	3,013	76,976	7.1
Berrien	23	149	149	17	13,639	10,645	23,603	.....	49	112	.....	12,911	351,075	8.
Branch	17	129	128	6	6,877	5,466	21,370	11	43	78	.....	8,353	211,500	8.3
Calhoun	23	164	164	9	12,698	9,319	27,295	6	38	135	.....	12,824	526,125	8.3
Cass	16	115	115	5	6,017	4,952	19,177	.....	26	90	.....	7,277	156,325	8.3
Charlevoix	19	73	73	5	3,823	2,928	10,302	.....	4	63	7	4,662	71,985	7.1
Cheboygan	16	57	55	3	4,964	2,826	7,194	.....	2	48	12	3,497	80,578	6.5
Chippewa	13	44	43	3	4,543	2,616	5,604	.....	2	28	20	2,949	65,685	6.5
Clare	15	46	41	3	2,377	1,808	5,717	.....	2	33	6	2,730	57,475	7.
Clinton	16	129	129	8	7,635	5,683	21,332	.....	34	96	.....	8,309	164,720	8.3
Crawford	9	37	30	1	712	626	2,615	.....	.....	29	4	1,446	28,150	4.3
Delta	14	30	26	4	5,379	3,240	4,266	.....	3	32	12	3,245	109,170	8.2
Dickinson	8	8	8	3	4,142	3,057	1,458	1	1	19	.....	3,049	121,568	9.1
Eaton	18	147	147	11	8,971	7,357	24,428	.....	45	111	.....	10,061	195,600	8.3
Emmet	12	60	57	2	3,172	2,020	7,364	.....	1	50	11	3,156	54,790	6.5
Genesee	20	159	159	12	11,239	8,758	26,691	.....	24	143	.....	12,474	340,000	8.4
Gladwin	12	30	29	1	1,570	1,123	3,827	.....	.....	16	14	1,506	23,995	6.6
Gogebic	7	9	9	3	3,293	2,565	1,680	.....	2	18	1	2,388	99,000	9.3
Gd. Traverse	14	68	68	6	5,204	4,084	9,478	.....	4	72	1	5,123	150,460	7.

Gratiot	18	130	130	9	9,298	7,480	21,016	.....	11	118	2	9,107	162,295	8.1
Hillsdale	19	166	166	15	8,234	6,401	26,653	9	59	105	.....	10,253	222,335	8.
Houghton	12	33	32	15	14,737	9,027	5,638	1	2	48	4	9,852	185,243	8.8
Huron	26	113	113	14	12,356	7,459	19,464	.....	12	96	7	8,499	113,098	8.6
Ingham	17	136	136	10	11,353	8,330	22,848	.....	45	105	.....	11,476	303,200	8.4
Ionia	18	143	143	13	10,129	7,572	23,623	1	33	117	.....	10,678	217,830	8.3
Iosco	13	27	26	5	3,828	2,663	4,166	.....	.....	33	2	3,020	37,415	8.
Iron	8	8	8	3	1,453	1,210	1,453	.....	.....	17	6	1,420	35,150	9.1
Isabella	17	100	100	3	7,258	5,093	15,757	.....	8	90	4	6,469	92,740	7.9
Isle Royal	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jackson	20	158	158	10	12,617	9,020	27,052	1	58	113	.....	12,027	389,290	8.6
Kalamazoo	17	138	138	10	11,128	7,565	22,241	.....	36	110	.....	11,325	453,040	8.1
Kalkaska	12	51	51	2	1,626	1,354	7,102	.....	1	47	2	2,419	40,100	7.
Kent	25	208	208	18	38,927	23,549	34,906	.....	63	180	3	28,220	1,424,065	8.4
Keweenaw	5	6	6	2	641	536	961	.....	.....	9	1	1,256	15,900	8.
Lake	13	47	41	4	1,774	1,456	5,741	.....	2	41	2	2,109	31,025	7.
Lapeer	19	136	136	13	9,356	7,110	23,173	1	15	122	.....	9,881	175,090	8.5
Leelanau	11	57	54	3	3,296	2,138	7,120	1	1	49	4	3,132	37,435	6.6
Lenawee	24	198	198	18	13,371	9,985	33,463	8	99	102	.....	14,132	393,490	8.5
Livingston	16	134	134	5	5,780	4,635	22,516	3	15	119	.....	7,503	125,210	8.4
Luce	4	4	4	1	555	450	670	.....	.....	7	3	652	14,100	8.4
Mackinac	13	25	24	3	2,305	1,663	2,910	.....	1	20	17	2,213	32,050	6.1
Macomb	15	112	112	10	10,768	6,278	19,034	.....	19	99	.....	8,520	218,812	8.5
Manistee	13	56	54	8	9,169	5,762	8,216	.....	3	55	2	5,989	154,914	7.6
Marquette	18	19	18	9	12,062	7,683	3,297	3	4	43	6	7,520	315,000	9.2
Mason	14	59	59	4	6,176	4,333	8,619	.....	6	60	3	4,961	146,384	7.3
Mecosta	17	100	97	6	7,098	5,077	14,673	.....	4	91	6	6,601	113,430	7.6
Menominee	10	34	34	6	7,646	4,847	5,301	.....	7	41	8	5,020	193,980	7.8
Midland	17	69	66	4	4,553	3,196	9,527	.....	6	51	12	4,011	84,715	7.2
Missaukee	12	50	45	4	2,141	1,646	6,901	.....	1	45	4	2,455	39,590	7.7
Monroe	16	138	138	6	11,074	7,036	22,709	2	68	71	.....	9,210	175,353	8.2
Montcalm	22	137	137	14	10,815	8,243	22,809	.....	8	130	4	10,318	178,670	8.3
Montmorency	7	8	8	2	799	636	1,125	.....	.....	14	11	997	14,300	7.
Muskegon	19	90	87	10	13,025	9,180	13,030	1	20	88	4	10,467	532,290	7.6
Newaygo	22	112	111	7	6,012	4,693	16,149	.....	6	97	9	6,186	94,125	7.3
Oakland	26	209	208	18	11,026	8,758	34,263	13	35	167	.....	13,904	322,615	8.2
Oceana	16	86	85	4	5,572	4,153	12,806	.....	7	77	1	5,363	77,600	7.5
Ogemaw	15	45	41	3	1,928	1,378	5,652	.....	1	36	7	2,062	30,395	6.9
Ontonagon	7	7	7	3	1,544	1,155	1,229	.....	.....	19	6	1,483	22,650	8.8
Osceola	16	92	92	8	5,697	4,345	13,821	.....	3	89	2	5,784	98,895	7.5
Oscoda	8	24	20	.....	379	312	2,104	.....	.....	14	9	632	7,342	5.3
Otsego	9	40	39	3	1,404	965	5,447	.....	1	39	.....	2,092	32,215	7.
Ottawa	17	122	122	24	13,860	9,596	20,291	1	26	107	.....	11,573	219,575	8.3
Presque Isle	11	31	31	1	1,856	884	3,160	.....	.....	11	22	1,804	15,400	5.1

TABLE III.—CONCLUDED.

Counties.	No. of townships and cities reporting.	Whole No. of school districts.	No. of districts that maintained school.	No. of graded school districts.	No. of children between five and twenty years of age.	No. of children between five and twenty years of age that attended school.	Whole No. of days of school.	No. of school houses.				Whole No. of sittings provided for in school houses.	Estimated value of school property.	Average No. months of school.
								Stone.	Brick.	Frame.	Log.			
Roscommon	8	15	10	1	448	278	970	------	------	6	8	536	$7,775	4.9
Saginaw	30	157	157	17	27,274	17,721	26,237	------	42	135	4	19,291	761,614	8.4
St. Clair	26	152	152	9	18,905	11,429	25,340	1	29	140	2	14,196	411,100	8.3
St. Joseph	16	124	124	9	6,702	5,585	20,277	2	34	91	------	8,490	285,765	8.2
Sanilac	26	145	144	23	12,328	9,157	25,198	1	13	129	3	11,159	119,857	8.8
Schoolcraft	8	18	18	2	1,789	1,358	2,746	------	------	18	9	1,551	30,990	7.6
Shiawassee	18	127	127	10	9,272	7,298	21,780	------	22	109	------	10,001	253,975	8.6
Tuscola	23	145	144	13	11,494	8,225	24,067	------	22	124	1	10,326	178,990	8.4
Van Buren	18	153	153	16	9,220	7,502	24,678	------	25	130	------	11,170	219,660	8.1
Washtenaw	22	167	167	9	12,333	8,944	27,769	6	65	106	------	11,460	432,240	8.3
Wayne	20	155	154	24	92,902	53,464	26,796	------	115	106	------	44,817	2,412,109	8.7
Wexford	16	75	75	4	4,363	3,307	10,566	------	2	71	6	4,749	114,560	7.

TABLE IV.

Employment of teachers as reported by school inspectors for the year ending September 2, 1895.

Counties.	No. of teachers required.		No. of teachers employed.		Aggregate No. of months taught.		Total wages of teachers.			Average monthly wages.		No. of township unit districts.
	Graded schools.	Ungraded schools.	Men.	Women.	Men.	Women.	Men.	Women.	Total.	Men.	Women.	
Totals	5,532	6,549	3,634	12,379	22,573	83,376	$1,042,156 11	$2,926,444 02	$3,968,600 13	$46 17	$35 10	89
Alcona	7	26	12	25	98	143	$4,077 50	$4,563 13	$8,640 63	$41 61	$31 91	----
Alger	5	5	3	15	25	97	1,525 00	4,442 50	5,967 50	61 00	45 80	7
Allegan	70	165	90	298	515	1,447	20,174 58	40,538 90	60,713 48	39 17	28 02	----
Alpena	42	24	13	83	79	560	5,976 00	20,013 00	25,989 00	75 65	35 74	5
Antrim	31	66	48	87	260	520	10,202 75	17,088 25	27,291 00	39 24	32 86	----
Arenac	11	30	10	35	72	285	2,926 00	6,776 70	9,702 70	40 64	28 84	----
Baraga	15	3	5	21	41	157	3,240 00	6,840 00	10,080 00	79 02	43 57	5
Barry	38	143	80	212	431	1,102	14,311 78	28,613 49	42,925 27	33 21	25 96	----
Bay	177	56	38	205	309	1,919	21,191 87	78,967 33	100,159 20	68 58	41 15	1
Benzie	27	44	22	76	128	397	5,585 50	12,541 50	18,127 00	43 64	31 59	----
Berrien	127	132	97	212	665	1,541	29,315 63	51,605 91	80,921 54	44 08	33 49	----
Branch	55	123	76	197	432	1,131	16,443 11	31,725 35	48,168 46	38 06	28 05	----
Calhoun	133	155	75	316	465	2,131	19,243 50	68,367 18	87,610 68	41 38	32 08	----
Cass	43	110	65	173	388	954	14,687 25	28,006 36	42,693 61	37 85	29 36	----
Charlevoix	27	68	28	99	141	575	6,180 30	16,129 35	22,309 65	43 83	28 05	----
Cheboygan	27	54	23	66	162	440	7,360 56	15,629 80	22,990 36	45 44	35 52	1
Chippewa	32	41	16	60	118	456	6,005 50	17,800 66	23,806 16	50 89	39 04	2
Clare	16	43	14	58	78	333	3,237 70	9,846 25	13,083 95	41 51	29 57	----
Clinton	48	121	54	203	314	1,137	11,924 40	31,950 50	43,874 90	37 98	28 10	----
Crawford	9	36	7	39	30	181	1,573 25	5,644 50	7,217 75	52 44	31 19	----
Delta	37	26	10	74	79	593	6,509 45	23,587 45	30,096 90	82 40	39 78	5
Dickinson	47	6	8	48	68	461	6,070 00	21,397 52	27,467 52	89 26	46 42	6
Eaton	72	136	89	248	472	1,353	18,994 76	40,318 50	59,313 26	40 24	29 80	----
Emmet	24	58	24	93	106	489	4,378 75	15,606 91	19,985 66	41 31	31 92	----
Genesee	96	147	88	263	496	1,677	22,217 25	55,938 92	78,156 17	44 80	33 36	----
Gladwin	5	29	18	32	87	152	3,077 50	4,697 62	7,775 12	35 37	30 91	----
Gogebic	39	6	5	45	48	438	4,525 00	21,268 75	25,793 75	94 27	48 56	3
Grand Traverse	47	62	26	108	155	682	8,051 00	24,530 51	32,581 51	51 94	35 97	1
Gratiot	50	121	103	180	469	983	15,822 88	27,648 49	43,471 37	33 74	28 13	----
Hillsdale	66	151	105	251	514	1,320	18,847 66	32,084 27	50,931 43	36 67	24 31	----

TABLE IV.—Concluded.

Counties.	No. of teachers required.		No. of teachers employed.		Aggregate No. of months taught.		Total wages of teachers.			Average monthly wages.		No. of township unit districts.
	Graded schools.	Ungraded schools.	Men.	Women.	Men.	Women.	Men.	Women.	Total.	Men.	Women.	
Houghton	159	18	26	172	234	1,502	$21,885 63	$71,589 08	$93,474 66	$93 53	$47 66	----
Huron	42	99	62	81	524	742	20,235 36	22,159 50	42,394 86	38 62	29 86	----
Ingham	110	126	106	269	544	1,599	20,876 65	52,922 95	73,799 60	38 38	33 10	----
Ionia	90	129	78	235	460	1,466	18,070 84	42,604 32	60,675 16	39 28	29 06	----
Iosco	36	22	12	56	82	434	4,448 00	15,479 80	19,927 80	54 24	35 67	----
Iron	22	5	6	30	51	275	3,942 00	12,920 00	16,862 00	77 30	47 00	8
Isabella	23	97	41	146	241	751	8,668 00	22,747 05	31,415 05	35 97	30 29	----
Jackson	128	148	104	299	572	1,914	23,972 86	63,073 38	87,046 24	41 91	32 95	----
Kalamazoo	121	138	65	272	374	1,824	16,831 95	58,571 05	75,403 00	45 01	32 11	----
Kalkaska	9	49	28	59	134	282	4,897 88	9,102 25	14,000 13	36 55	32 24	----
Kent	412	190	126	614	732	4,785	40,339 83	205,465 54	245,805 37	55 11	42 92	----
Keweenaw	5	4	6	8	45	51	2,840 00	1,976 25	4,816 25	63 11	38 81	2
Lake	12	43	9	53	77	290	3,263 00	7,956 25	11,219 25	42 38	27 44	----
Lapeer	60	123	56	167	438	1,187	16,743 00	31,096 76	47,839 76	38 23	26 20	----
Leelanau	9	54	18	67	100	311	4,006 00	9,387 43	13,393 43	40 06	30 18	----
Lenawee	112	180	101	310	589	2,004	25,820 22	56,135 37	81,955 59	43 85	28 01	----
Livingston	35	129	77	235	392	1,033	12,393 30	23,364 15	35,757 45	31 62	22 62	----
Luce	9	3	4	13	40	96	2,800 00	3,665 00	6,465 00	70 00	38 18	4
Mackinac	15	22	9	46	65	283	3,202 00	9,642 60	12,844 60	49 26	34 07	5
Macomb	66	102	53	126	420	1,059	17,844 83	30,799 66	48,644 49	42 49	29 08	----
Manistee	35	48	25	126	211	954	13,515 00	34,249 20	47,764 20	64 05	35 90	----
Marquette	131	10	20	143	169	1,365	14,620 84	62,239 68	76,860 52	86 51	45 60	14
Mason	52	55	25	110	187	749	8,901 75	28,496 55	37,398 30	47 60	38 05	----
Mecosta	37	94	34	143	196	853	7,763 55	26,334 42	34,097 97	39 61	30 87	----
Menominee	77	28	14	98	113	874	6,910 25	35,169 65	42,079 90	61 15	40 24	4
Midland	20	65	9	97	56	578	2,617 66	16,659 25	19,276 91	46 74	28 82	----
Missaukee	13	46	21	51	137	300	5,700 00	9,879 69	15,579 69	41 61	32 93	----
Monroe	37	132	70	184	184	1,047	15,363 09	27,156 05	42,519 14	83 50	25 94	----
Montcalm	72	123	62	237	340	1,353	14,336 56	37,908 03	52,244 59	42 17	28 03	----
Montmorency	8	6	7	28	51	152	2,082 50	4,651 00	6,733 50	40 83	30 60	6
Muskegon	135	80	34	209	265	1,574	14,245 41	56,599 08	70,844 49	53 76	35 95	----
Newaygo	27	105	40	170	228	771	8,657 62	20,961 99	29,619 61	37 97	27 19	----
Oakland	94	191	108	259	684	1,785	27,593 91	48,204 32	75,798 23	40 34	27 01	----
Oceana	23	82	45	112	248	581	9,456 31	16,760 43	26,216 74	38 13	28 85	----
Ogemaw	7	42	17	44	91	232	3,478 00	7,156 30	10,634 30	38 22	30 85	----

Ontonagon	25	4	9	30	84	248	5,900 00	10,416 42	16,316 42	70 24	42 00	6
Osceola	39	84	29	135	192	805	8,060 90	24,090 55	32,151 45	41 98	29 93	----
Oscoda	----	24	7	18	28	81	836 00	2,128 25	2,964 25	29 86	26 27	----
Otsego	11	37	17	52	78	265	3,017 40	7,754 20	10,771 60	38 68	29 26	----
Ottawa	113	98	55	182	436	1,441	20,681 75	41,467 93	62,149 68	47 41	28 71	1
Presque Isle	3	30	22	20	100	75	3,662 50	2,359 92	6,022 42	36 62	31 47	----
Roscommon	3	14	4	11	25	42	1,070 00	1,317 50	2,387 50	42 80	31 37	----
Saginaw	254	140	78	361	621	3,141	34,844 00	119,046 91	153,890 91	56 11	37 90	----
St. Clair	115	144	54	248	402	1,935	17,011 50	61,588 34	78,599 84	42 32	31 73	----
St. Joseph	60	115	75	203	442	1,174	16,945 36	31,454 81	48,400 17	38 34	26 79	----
Sanilac	48	122	85	108	691	817	24,880 25	20,684 41	45,564 66	36 00	25 32	----
Schoolcraft	17	16	18	34	118	218	5,794 50	10,389 87	16,184 37	49 11	47 66	3
Shiawassee	76	117	73	222	455	1,290	19,238 56	37,429 65	56,668 21	42 28	29 02	----
Tuscola	54	132	70	184	465	1,152	17,329 50	29,696 45	47,025 95	37 27	25 86	----
Van Buren	72	137	73	205	485	1,276	19,119 42	35,612 43	54,731 85	39 42	27 91	----
Washtenaw	116	158	74	284	484	1,961	27,566 50	62,675 60	90,242 10	56 96	31 96	----
Wayne	776	131	105	858	835	8,038	68,782 54	453,921 00	523,703 54	82 37	56 47	----
Wexford	39	71	22	133	113	767	5,415 20	27,156 20	32,571 40	47 92	35 41	----

TABLE V.

Resources of school districts as reported by school inspectors for year ending September 2, 1896.

Counties.	Ordinary receipts.							Received from loans.	Money on hand Sept. 3, 1894.	Total resources including am't on hand and loans.
	One-mill tax.	Primary school interest fund.	Library moneys.	Tuition of non-resident pupils.	District taxes for all purposes.	Raised from all other sources.	Total net receipts.			
Totals	$630,621 86	$882,081 20	$96,518 20	$75,890 41	$3,831,252 69	$356,585 89	$5,872,950 25	$480,794 42	$1,559,891 09	$7,913,635 76
Alcona	$143 88	$2,227 16	----------	$22 00	$7,522 68	$96 27	$10,011 99	$165 00	$3,379 59	$13,556 58
Alger	902 12	352 70	----------	----------	8,434 89	788 11	10,477 82	----------	493 90	10,971 72
Allegan	12,855 40	14,328 33	$928 76	1,857 68	46,964 78	2,696 67	79,631 62	1,467 97	20,917 76	102,017 35
Alpena	271 69	8,819 64	645 69	5 00	21,636 53	926 91	32,305 46	111 78	6,983 34	39,400 58
Antrim	2,447 01	3,998 85	14 38	179 12	29,492 49	1,482 93	37,614 78	1,106 63	7,694 12	46,415 53
Arenac	294 27	2,921 02	98 33	10 50	10,189 32	776 60	14,290 04	4,812 00	1,387 08	20,489 12
Baraga	----------	1,714 03	21 37	----------	14,010 06	825 70	16,571 16	500 00	2,239 75	19,310 91
Barry	9,487 95	9,177 44	85 21	1,829 06	34,433 78	918 53	55,931 97	7,520 87	11,036 44	74,489 28
Bay	5,052 48	28,078 30	163 98	670 15	104,533 41	6,058 94	144,557 26	22,295 35	14,388 93	181,241 54
Benzie	1,057 98	2,486 48	6 20	24 60	23,337 76	1,265 82	28,178 84	2,505 74	3,592 17	34,276 75
Berrien	14,289 23	18,231 26	392 85	2,104 02	80,197 63	7,945 97	123,160 96	7,631 53	25,354 42	156,146 91
Branch	12,725 33	9,220 29	128 94	1,766 04	42,081 71	1,293 33	67,215 64	556 47	19,868 02	87,640 13
Calhoun	16,771 51	15,585 34	726 92	2,031 28	89,149 49	2,705 52	126,970 06	10,138 04	14,738 68	151,846 78
Cass	12,326 26	7,300 36	263 46	1,710 82	33,925 77	1,488 05	57,014 72	9,505 44	10,058 86	76,579 02
Charlevoix	2,159 32	4,370 79	127 81	147 55	26,318 54	699 64	33,823 65	179 91	7,076 17	41,079 73
Cheboygan	2,227 75	5,791 63	376 75	31 50	24,251 58	1,863 69	34,542 90	15,905 74	15,453 97	65,902 61
Chippewa	1,901 10	4,914 05	221 50	16 75	20,268 18	1,503 05	28,824 63	3,777 56	3,315 44	35,917 63
Clare	449 76	2,726 02	118 29	59 60	10,939 19	6,162 05	20,454 91	1,605 25	9,801 88	31,862 04
Clinton	14,250 04	10,736 15	963 51	1,215 66	34,846 59	1,649 35	63,661 30	2,825 91	14,098 58	80,585 79
Crawford	87 47	952 97	2 70	12 00	7,746 84	300 76	9,102 74	38 69	5,692 13	14,833 56
Delta	1,843 22	5,135 95	578 80	9 00	29,362 68	12,702 07	49,631 72	2,174 60	8,420 95	60,227 27
Dickinson	687 44	4,760 93	532 05	13 50	54,963 89	5 33	60,963 14	4,535 97	4,061 87	69,560 98
Eaton	15,940 39	11,334 52	451 82	2,822 92	42,136 81	2,557 88	75,244 34	1,197 38	14,739 87	91,181 59
Emmet	595 13	2,922 50	----------	109 88	22,186 42	1,180 23	26,994 16	806 73	4,510 22	32,311 11
Genesee	19,717 61	16,824 99	827 10	2,951 57	67,040 52	1,834 35	109,196 14	5,355 81	12,682 78	127,234 73
Gladwin	253 60	1,713 36	----------	20 00	7,307 26	134 30	9,428 52	341 50	3,435 35	13,205 37
Gogebic	851 89	3,015 35	186 87	----------	44,633 57	3,002 14	51,689 82	568 17	6,888 78	59,146 77
Grand Traverse	2,370 91	5,911 46	128 11	869 79	40,040 91	1,434 84	50,806 02	7,454 32	7,551 00	65,811 34
Gratiot	9,323 83	11,380 70	866 80	938 54	37,357 93	1,831 42	61,699 22	1,987 98	16,880 83	80,568 03
Hillsdale	16,952 74	10,611 46	465 78	2,193 78	33,981 89	1,578 52	65,784 17	6,762 88	10,929 81	83,476 86
Houghton	20,579 99	20,937 27	5,024 73	917 65	90,808 26	5,848 26	144,116 16	2,549 27	55,226 44	201,891 87
Huron	6,639 54	15,092 94	8 00	157 28	32,013 80	658 23	54,569 79	11,886 99	11,434 40	77,891 18
Ingham	20,233 36	15,264 33	1,153 41	2,702 31	79,089 47	3,972 89	122,415 77	4,383 37	44,011 66	170,810 80
Ionia	12,782 27	11,756 59	787 98	2,587 31	49,689 11	5,457 53	83,060 79	1,503 18	20,381 99	104,945 96
Iosco	729 52	5,096 82	59 27	106 18	19,804 75	885 48	26,682 02	208 00	10,345 35	37,235 37
Iron	1,313 53	2,030 97	----------	----------	21,368 02	295 23	25,007 75	1,953 81	7,125 30	34,086 86

Isabella	4,731 44	8,329 29	146 01	80 73	24,374 02	1,915 62	39,577 11	794 75	12,040 20	52,412 06
Jackson	21,830 73	16,328 07	1,108 78	1,873 50	85,548 45	1,187 76	127,782 29	959 88	11,639 68	140,381 85
Kalamazoo	20,182 89	14,636 80	1,879 24	3,168 43	73,607 09	1,600 65	115,077 10	2,416 47	13,278 41	130,771 98
Kalkaska	2,115 61	1,847 95	130 25	72 82	12,125 11	885 32	17,147 06	1,938 05	6,138 61	25,223 72
Kent	28,481 19	47,304 41	5,177 76	3,243 43	269,142 10	3,947 36	357,296 25	1,221 74	100,399 18	458,917 17
Keweenaw	1,280 46	1,773 52	----------	----------	2,859 60	351 11	6,264 69	----------	4,154 24	10,418 93
Lake	639 40	1,878 60	23 96	6 02	10,386 48	1,134 64	14,049 10	211 11	6,961 66	21,221 87
Lapeer	11,052 90	12,496 88	372 54	1,461 91	36,422 92	1,010 52	62,817 67	5,562 16	12,756 79	81,136 62
Leelanau	1,083 32	3,913 44	367 37	16 75	12,860 56	1,208 04	19,394 48	1,359 33	3,247 50	24,001 31
Lenawee	27,335 39	17,119 02	2,053 69	2,486 68	59,056 46	2,764 47	110,805 71	3,932 45	19,158 40	133,896 56
Livingston	12,247 64	7,598 98	651 86	1,729 08	23,680 66	1,389 81	47,302 98	1,389 30	9,822 73	58,495 00
Luce	1,622 70	701 25	41 95	4 00	9,219 93	269 94	11,859 77	----------	2,444 59	14,304 36
Mackinac	567 42	2,645 61	127 89	6 60	14,644 58	415 42	18,407 52	1,645 65	2,843 71	22,896 88
Macomb	15,990 08	14,028 42	1,011 15	1,428 20	30,426 74	1,215 20	64,094 79	1,515 09	12,252 67	77,862 55
Manistee	4,139 59	10,917 36	282 33	200 64	53,398 57	566 58	69,500 07	18,430 50	20,459 23	108,389 80
Marquette	9,873 11	19,210 68	2,120 95	36 00	81,726 57	6,820 85	119,788 11	8,954 77	24,773 68	153,516 56
Mason	1,440 15	7,362 46	105 91	123 75	42,460 37	1,199 01	52,691 65	8,068 23	5,171 56	65,931 44
Mecosta	2,110 31	8,647 80	225 47	208 80	29,398 28	1,522 56	42,108 22	2,058 64	13,878 26	58,045 12
Menominee	4,497 71	9,860 46	371 82	115 70	50,240 62	6,183 07	71,269 38	47,173 34	19,894 11	138,336 83
Midland	1,658 44	5,218 52	4 11	230 68	16,082 91	2,332 83	25,527 44	7,959 38	8,202 05	41,688 87
Missaukee	1,198 64	2,321 86	71 75	16 00	16,008 84	1,047 08	20,664 17	203 50	7,733 39	28,601 06
Monroe	15,447 24	14,070 10	528 72	1,102 98	19,951 94	1,625 34	52,721 27	3,206 35	12,029 65	67,957 27
Montcalm	6,743 46	14,184 84	392 56	935 09	36,606 46	6,849 47	65,711 98	2,583 96	17,886 75	86,182 69
Montmorency	263 59	972 11	----------	----------	7,959 04	140 32	9,335 06	708 21	3,141 08	13,184 35
Muskegon	6,537 62	17,458 19	460 21	396 68	65,873 08	9,961 78	100,702 56	60,466 97	16,430 68	177,600 21
Newaygo	2,591 48	8,233 98	81 89	325 01	25,721 78	1,678 99	38,633 13	67 49	13,844 53	52,545 15
Oakland	21,700 78	14,136 69	739 07	3,496 24	59,796 31	3,592 48	103,461 57	3,206 44	12,324 22	118,992 23
Oceana	2,818 31	6,892 64	20 66	318 68	26,066 01	1,348 24	37,429 54	545 05	7,954 48	45,929 07
Ogemaw	519 12	2,194 37	58 90	4 00	11,217 30	635 23	14,628 92	2,877 26	4,894 35	22,400 53
Ontonagon	1,764 35	1,692 69	673 76	----------	22,028 27	1,251 56	27,410 63	20,000 00	3,337 49	50,748 12
Osceola	3,138 86	7,022 24	108 58	137 95	34,233 15	1,448 35	46,089 13	7,412 00	23,257 32	76,758 45
Oscoda	161 61	399 65	10 24	50	3,044 58	34 69	3,651 27	268 53	1,033 60	4,953 40
Otsego	869 53	1,674 31	141 45	36 64	11,156 30	215 70	14,093 93	849 23	4,874 84	19,818 00
Ottawa	9,121 55	16,883 05	323 59	584 26	58,820 16	1,788 54	87,521 15	8,933 23	11,010 92	107,465 30
Presque Isle	701 45	2,083 20	30 71	----------	4,901 53	278 12	7,995 01	100 00	3,646 84	11,741 85
Roscommon	123 08	768 46	----------	----------	2,040 84	424 60	3,356 98	153 82	1,148 82	4,659 62
Saginaw	9,061 64	36,730 10	1,024 32	1,118 01	185,514 50	9,569 05	243,017 62	8,636 36	26,603 44	278,257 42
St. Clair	15,563 98	19,565 02	843 20	866 74	67,236 21	1,829 87	105,895 02	25,805 55	21,713 20	153,413 77
St. Joseph	13,471 57	8,628 89	288 82	1,750 58	39,848 82	1,762 88	65,751 56	4,194 98	10,803 19	80,749 73
Sanilac	6,830 85	15,915 29	482 74	550 69	34,750 43	2,343 15	60,873 15	3,321 29	13,453 26	77,647 70
Schoolcraft	1,562 05	1,297 94	1,197 86	----------	15,639 48	773 52	20,470 83	168 01	11,656 30	32,295 14
Shiawassee	10,814 14	12,340 58	595 95	1,522 90	51,566 75	1,794 86	78,635 18	20,862 76	18,890 90	118,388 84
Tuscola	8,154 52	14,586 95	488 11	1,248 61	43,077 40	1,987 65	69,498 24	4,909 78	15,954 26	90,357 28
Van Buren	12,693 25	11,604 74	488 52	2,814 25	43,194 43	3,450 33	74,245 52	2,157 07	14,929 23	91,331 82
Washtenaw	29,186 17	16,187 28	340 96	8,714 15	69,852 10	3,084 40	127,365 06	15,790 26	24,814 47	167,969 79
Wayne	34,836 69	119,521 94	54,549 35	3,248 77	559,751 84	173,244 83	945,153 42	19,657 60	492,373 86	1,457,184 88
Wexford	1,415 33	5,269 62	25 87	125 02	35,781 63	1,632 51	44,249 98	1,818 04	18,434 94	64,502 96

TABLE VI.

Expenditures of school districts as reported by school inspectors for the year ending September 2, 1895.

Counties.	Ordinary expenditures for maintaining the schools.							Paid on indebtedness (principal).	Amount on hand Sept. 2, 1895.	Total expenditures including am't on hand and paid on indebtedness.
	Paid male teachers.	Paid female teachers.	Paid for building and repairs.	Paid for books and care of library.	Paid interest on loans.	Paid for all other purposes.	Total net expenses.			
Totals	$1,040,746 07	$2,922,335 99	$976,440 49	$94,531 56	$123,334 11	$1,270,614 84	$6,428,003 06	$318,810 55	$1,166,822 15	$7,913,635 76
Alcona	$4,027 50	$4,384 76	$660 13	$15 00	$56 56	$1,847 62	$10,991 57	$525 81	$2,039 20	$13,556 58
Alger	1,525 00	4,442 50	471 87	----------	365 06	2,213 68	9,018 11	1,740 97	212 64	10,971 72
Allegan	20,174 58	40,508 90	3,328 00	148 79	1,180 34	12,693 91	78,034 52	5,940 97	18,041 86	102,017 35
Alpena	5,935 28	19,864 11	1,570 25	762 74	124 05	7,189 14	35,445 57	659 13	3,295 88	39,400 58
Antrim	10,114 00	16,953 25	1,558 59	15 30	1,261 27	8,664 44	38,566 85	1,718 86	6,129 82	46,415 53
Arenac	2,746 00	6,572 45	4,919 58	43 29	462 65	2,557 49	17,301 46	1,537 93	1,649 73	20,489 12
Baraga	3,240 00	6,840 00	575 92	154 09	255 37	3,722 77	14,788 15	1,450 00	3,072 76	19,310 91
Barry	14,311 78	28,497 13	1,634 02	238 35	589 50	9,766 07	55,036 85	9,588 94	9,863 49	74,489 28
Bay	21,231 87	78,952 33	7,395 10	274 28	5,500 30	47,446 38	160,740 26	2,637 89	17,863 39	181,241 54
Benzie	5,585 50	12,541 50	2,095 94	45 64	1,809 40	5,993 43	28,071 41	1,746 19	4,459 15	34,276 75
Berrien	29,315 63	51,579 28	16,313 74	777 41	2,497 57	25,917 12	126,400 75	7,923 90	21,822 26	156,146 91
Branch	16,443 11	31,725 35	3,407 47	56 49	1,292 67	11,340 78	64,265 87	3,765 94	19,608 32	87,640 13
Calhoun	19,163 50	68,337 18	4,057 85	1,177 89	2,171 13	26,368 08	121,275 58	17,262 88	13,308 32	151,846 78
Cass	14,687 25	27,991 36	1,846 20	119 51	795 81	8,690 27	54,130 40	11,224 96	11,223 66	76,579 02
Charlevoix	6,215 30	16,068 88	2,626 76	94 90	1,629 27	6,698 44	33,333 55	2,605 88	5,140 30	41,079 73
Cheboygan	7,360 56	15,629 80	20,201 49	585 09	2,006 72	14,812 17	60,595 83	1,166 86	4,139 92	65,902 61
Chippewa	5,870 95	17,697 45	1,545 40	115 01	1,071 72	6,944 48	33,245 01	905 59	1,767 03	35,917 63
Clare	3,237 70	9,784 05	2,521 43	28 07	859 93	4,474 19	21,205 37	590 00	10,066 67	31,862 04
Clinton	11,924 40	31,950 50	3,491 40	296 46	597 39	10,607 45	58,867 60	5,450 58	16,267 61	80,585 79
Crawford	1,513 13	5,589 42	987 76	32 00	62 46	1,693 60	9,878 37	209 32	4,745 87	14,833 56
Delta	6,509 45	23,612 97	5,107 45	706 64	2,005 85	10,249 66	48,192 02	1,363 24	10,672 01	60,227 27
Dickinson	6,070 00	21,397 52	5,678 33	732 92	3,517 94	14,720 78	52,117 49	8,974 10	8,469 39	69,560 98
Eaton	18,994 76	40,276 50	1,808 18	239 42	421 36	13,079 05	74,814 27	2,972 41	13,394 91	91,181 59
Emmet	4,328 75	15,520 45	1,616 68	88 21	1,102 42	5,515 76	28,172 27	1,771 39	2,367 45	32,311 11
Genesee	22,217 25	55,943 92	4,303 07	1,349 73	3,863 57	18,737 47	106,415 01	10,029 36	10,790 36	127,234 73
Gladwin	3,065 45	4,492 07	862 11	15 00	161 15	1,898 44	10,494 22	569 40	2,141 75	13,205 37
Gogebic	4,525 00	21,268 75	841 40	121 67	2,561 66	19,024 44	48,342 92	3,000 00	7,803 85	59,146 77
Grand Traverse	7,964 28	24,524 51	1,990 58	589 71	1,426 15	15,754 19	52,249 42	2,046 74	11,515 18	65,811 34
Gratiot	15,822 88	27,648 49	3,857 83	338 76	2,483 82	9,240 87	59,387 65	6,085 93	15,144 45	80,568 03
Hillsdale	18,842 66	32,084 27	7,472 55	199 24	609 23	11,365 51	70,573 46	4,821 40	8,082 00	83,476 86
Houghton	21,885 63	71,484 03	14,424 13	1,357 94	1,890 21	40,551 33	151,593 27	2,881 50	47,417 10	201,891 87
Huron	20,195 36	22,099 50	11,128 38	179 80	1,548 08	9,608 80	64,760 12	3,466 87	9,664 19	77,891 18
Ingham	20,868 65	52,917 95	3,798 22	2,341 19	2,948 32	22,507 55	105,381 88	4,335 83	61,093 09	170,810 80
Ionia	18,070 84	42,604 32	6,698 37	457 82	531 82	14,669 80	83,032 97	2,528 51	19,384 48	104,945 96
Iosco	4,333 08	15,153 51	835 62	21 50	139 98	4,854 28	25,337 97	1,744 76	10,152 64	37,235 37

Iron	3,942 00	12,920 00	1,192 50	150 00	1,066 95	5,992 92	25,264 37	1,942 61	6,879 88	34,086 86
Isabella	8,608 35	22,705 31	3,165 06	55 00	1,332 62	6,842 11	42,708 45	1,925 00	7,778 61	52,412 06
Jackson	23,941 86	63,078 38	2,500 08	204 29	1,806 90	25,645 13	117,176 64	5,685 60	17,519 61	140,381 85
Kalamazoo	16,831 95	58,557 67	5,896 81	2,825 58	842 99	22,264 37	107,219 37	7,719 64	14,832 97	130,771 98
Kalkaska	4,897 58	9,077 25	865 54	71 49	200 36	3,245 57	18,358 09	2,588 24	4,277 39	25,223 72
Kent	40,339 83	205,467 82	9,042 01	7,803 97	18,477 44	65,106 91	346,237 98	10,776 93	101,902 26	458,917 17
Keweenaw	2,840 00	1,976 25	91 90	----------	2 80	1,218 69	6,129 64	----------	4,289 29	10,418 93
Lake	3,251 00	7,874 25	254 06	45 15	33 98	2,947 64	14,406 08	437 94	6,377 85	21,221 87
Lapeer	16,743 00	31,088 76	4,050 10	164 30	770 82	10,646 27	63,463 25	6,709 47	10,963 90	81,136 62
Leelanau	3,999 35	9,387 43	2,586 74	87 43	208 60	2,927 18	19,196 73	1,321 86	3,482 72	24,001 31
Lenawee	25,820 22	56,115 62	6,443 67	2,362 37	776 11	19,609 79	111,127 78	5,470 04	17,298 74	133,896 56
Livingston	12,393 30	23,364 15	1,849 97	41 98	278 71	8,533 77	46,461 83	2,063 68	9,969 49	58,495 00
Luce	2,800 00	3,665 00	1,004 27	99 75	341 97	3,835 96	11,746 95	1,014 28	1,543 13	14,304 36
Mackinac	3,202 00	9,359 70	1,054 49	39 88	972 62	3,270 68	17,899 37	2,437 55	2,559 96	22,896 88
Macomb	17,804 83	30,799 66	6,126 65	894 79	352 92	8,038 04	64,016 89	2,891 72	10,953 94	77,862 55
Manistee	13,515 00	34,249 20	21,897 77	595 00	2,291 09	22,433 89	94,981 95	4,555 75	8,852 10	108,389 80
Marquette	14,620 84	62,239 68	8,653 42	1,315 73	3,071 07	36,834 99	126,735 73	10,100 00	16,680 83	153,516 56
Mason	8,901 75	28,384 55	3,367 89	84 50	3,457 01	9,412 77	53,608 47	7,298 32	5,024 65	65,931 44
Mecosta	7,663 55	26,334 42	2,476 71	73 79	253 28	7,446 90	44,248 65	1,258 04	12,538 43	58,045 12
Menominee	6,872 00	35,109 65	62,732 16	592 76	4,814 45	14,487 69	124,608 71	1,850 08	11,878 04	138,336 83
Midland	2,561 66	16,152 35	10,151 84	21 65	49 59	6,041 66	34,978 75	444 98	6,265 14	41,688 87
Missaukee	5,700 00	9,729 69	1,927 72	75 30	281 44	3,356 30	21,070 45	901 50	6,629 11	28,601 06
Monroe	15,348 09	27,126 65	2,212 19	640 81	497 16	10,096 13	55,920 43	2,877 05	9,159 79	67,967 27
Montcalm	14,304 56	37,868 03	3,619 73	155 73	736 41	12,014 11	68,698 57	1,553 63	15,930 49	86,182 69
Montmorency	2,082 50	4,531 00	2,544 79	72 00	74 00	2,112 12	11,416 41	600 00	1,167 94	13,184 35
Muskegon	14,245 41	56,463 13	2,962 27	3,989 59	5,108 07	83,089 68	165,858 15	1,778 77	9,963 29	177,600 21
Newaygo	8,657 62	20,884 99	1,064 58	40 15	189 71	6,321 86	37,158 91	1,013 32	14,372 92	52,545 15
Oakland	27,593 91	48,184 32	5,665 17	342 47	1,583 62	18,128 90	101,498 39	6,925 63	10,568 21	118,992 23
Oceana	9,447 31	16,728 43	1,193 09	14 15	516 82	6,494 12	34,393 92	2,277 92	9,257 23	45,929 07
Ogemaw	3,437 00	6,961 75	2,064 38	5 00	519 88	3,100 20	16,088 21	736 51	5,575 81	22,400 53
Ontonagon	5,900 00	10,369 60	6,858 38	52 00	675 68	6,450 06	30,305 72	17,796 79	2,645 61	50,748 12
Osceola	8,060 90	24,009 55	21,867 51	80 09	1,713 43	8,639 99	64,371 47	5,086 04	7,300 94	76,758 45
Oscoda	761 00	2,120 41	351 39	----------	----------	576 16	3,808 96	105 40	1,039 04	4,953 40
Otsego	3,017 40	7,721 20	1,236 90	87 06	524 13	2,571 42	15,158 11	738 25	3,921 64	19,818 00
Ottawa	20,569 87	41,434 75	6,181 70	655 97	1,686 81	22,390 65	92,919 25	4,203 66	10,342 39	107,465 30
Presque Isle	3,662 50	2,360 92	607 17	73 16	57 04	1,523 70	8,284 49	954 99	2,502 37	11,741 85
Roscommon	1,070 00	1,269 44	10 00	----------	202 00	738 75	3,290 19	----------	1,369 43	4,659 62
Saginaw	34,844 00	119,046 91	18,453 03	2,553 42	2,840 55	69,121 96	246,859 87	6,675 38	24,722 17	278,257 42
St. Clair	17,011 50	61,578 34	23,909 08	638 36	1,208 70	29,324 39	133,670 37	2,044 95	17,698 45	153,413 77
St. Joseph	16,939 08	31,454 81	3,040 74	290 90	708 84	15,216 20	67,650 57	5,425 03	7,674 13	80,749 73
Sanilac	24,980 25	20,587 41	4,444 55	42 74	1,052 01	10,966 22	62,073 18	3,588 85	11,985 67	77,647 70
Schoolcraft	5,794 50	10,389 87	1,770 65	725 82	379 50	4,127 28	23,187 62	322 00	8,785 52	32,295 14
Shiawassee	19,238 56	37,428 65	25,469 87	187 47	2,000 08	15,552 47	99,877 10	5,883 34	12,628 40	118,388 84
Tuscola	17,329 50	29,655 45	6,385 27	89 76	1,787 99	12,289 88	67,537 85	7,989 51	14,829 92	90,357 28
Van Buren	19,119 42	35,637 43	3,647 25	472 21	675 39	12,634 37	72,186 07	4,454 09	14,691 66	91,331 82
Washtenaw	27,566 50	62,927 60	25,494 50	911 84	1,469 01	31,908 96	150,278 41	7,874 37	9,817 01	167,969 79
Wayne	68,782 54	453,921 00	488,772 70	50,031 34	3,675 19	156,727 80	1,221,910 57	9,153 47	226,120 84	1,457,184 88
Wexford	5,415 20	27,099 20	7,415 24	60 00	2,017 64	6,938 84	48,946 12	4,114 33	11,442 51	64,502 96

TABLE VII.

Miscellaneous statistics as reported by school inspectors for the year ending September 2, 1895.

Counties.	Bonded indebtedness of the districts.	Total indebtedness of the districts.	Amount due the districts.	Amount paid and due inspectors and members of school boards for services.	Amount paid and due township chairmen and officers for services.
Totals	$2,009,540 28	$2,210,419 90	$290,684 44	$15,572 37	$21,298 12
Alcona	$1,670 00	$2,675 56	$2,090 52	$91 50	$23 50
Alger	1,200 00	2,258 00	551 11	285 00	271 00
Allegan	18,026 50	19,041 05	3,470 62	252 25	85 00
Alpena	2,000 00	3,953 09	1,924 89	302 00	434 00
Antrim	24,475 00	26,029 79	2,410 45	111 94	38 00
Arenac	7,985 00	11,806 85	4,176 74	99 75	33 25
Baraga	2,000 00	2,000 00	----------	268 80	235 00
Barry	5,733 00	6,058 38	1,128 25	108 45	91 50
Bay	83,381 66	93,543 96	8,588 14	289 50	427 50
Benzie	29,562 34	37,770 43	4,370 08	86 50	16 25
Berrien	36,817 00	38,727 37	2,713 58	319 75	193 50
Branch	23,766 67	24,038 57	641 14	133 75	219 00
Calhoun	45,200 00	55,175 75	1,392 04	181 50	421 75
Cass	19,300 00	19,734 29	1,043 61	174 45	103 25
Charlevoix	24,491 17	25,559 62	2,419 32	154 50	33 50
Cheboygan	34,973 01	43,071 10	4,632 67	180 75	151 50
Chippewa	19,150 00	24,923 90	6,905 28	90 37	237 87
Clare	16,457 00	17,350 06	2,357 75	198 50	97 00
Clinton	5,592 30	6,596 88	1,627 45	180 75	----------
Crawford	522 00	1,051 70	991 78	113 25	20 25
Delta	37,335 00	40,077 40	1,242 26	272 60	520 82
Dickinson	51,604 00	53,535 97	14,755 65	255 00	789 00
Eaton	3,700 00	4,444 13	945 99	171 17	355 00
Emmet	19,216 61	21,688 35	5,081 14	112 50	12 50
Genesee	40,015 00	42,466 44	1,831 68	273 00	333 75
Gladwin	2,515 49	3,695 97	503 64	91 75	26 25
Gogebic	25,700 00	27,108 17	2,375 26	307 00	856 72
Grand Traverse	25,845 00	33,547 23	1,546 91	112 25	23 25
Gratiot	40,590 00	41,948 58	3,856 27	153 75	120 00
Hillsdale	11,669 50	12,638 87	843 04	107 70	137 75
Houghton	31,710 00	35,534 79	15,434 54	182 50	124 50
Huron	24,970 56	27,918 83	1,732 77	275 35	73 50
Ingham	52,185 80	52,809 51	850 98	93 50	816 00
Ionia	8,202 23	11,498 30	1,349 10	94 50	31 50
Ioseo	1,000 00	3,205 02	3,647 01	331 75	259 50
Iron	15,250 00	17,165 78	4,380 02	355 00	547 00
Isabella	21,075 00	22,061 96	3,779 98	133 00	137 75
Jackson	46,088 70	52,029 85	1,905 69	141 00	774 50
Kalamazoo	11,138 00	12,121 02	821 59	108 25	421 25
Kalkaska	840 00	2,537 06	3,413 79	87 50	18 75
Kent	370,200 00	372,059 94	22,711 87	222 00	858 50
Keweenaw	----------	----------	2,130 20	55 50	75 00
Lake	755 00	1,396 27	2,765 38	129 53	32 00
Lapeer	11,883 34	13,899 18	826 59	129 50	55 25
Leelanau	2,982 00	3,747 25	731 54	123 75	17 25
Lenawee	8,366 25	10,261 51	2,246 92	171 85	206 25
Livingston	5,675 00	7,091 65	819 13	128 00	22 00
Luce	3,000 00	4,378 43	2,054 67	211 25	375 00
Mackinac	16,318 00	17,537 99	4,148 06	233 35	268 00
Macomb	1,644 50	3,353 62	478 81	183 50	24 75

TABLE VII.—CONCLUDED.

Counties.	Bonded indebtedness of the districts.	Total indebtedness of the districts.	Amount due the districts.	Amount paid and due inspectors and members of school boards for services.	Amount paid and due township chairmen and officers for services.
Manistee	$35,641 95	$41,177 74	$5,616 02	$125 00	$20 25
Marquette	54,000 00	58,079 76	5,929 65	893 32	1,926 00
Mason	25,213 00	47,969 58	2,082 37	121 25	229 00
Mecosta	3,660 48	4,538 18	4,040 01	158 00	231 50
Menominee	80,584 00	81,879 84	2,922 31	331 50	729 00
Midland	9,816 00	13,539 89	11,521 92	116 50	104 25
Missaukee	6,624 00	7,510 64	2,267 30	191 00	60 25
Monroe	5,488 00	5,809 49	589 16	209 00	77 75
Montcalm	11,885 00	13,140 81	4,874 08	168 10	122 85
Montmorency	1,480 35	3,505 72	2,096 43	228 00	282 00
Muskegon	35,806 66	65,464 20	40,340 79	221 75	86 50
Newaygo	1,856 53	2,339 73	5,627 76	309 50	65 50
Oakland	27,308 34	28,732 70	1,947 58	223 75	47 00
Oceana	88,081 23	8,613 59	2,811 29	196 22	41 75
Ogemaw	9,275 00	11,077 70	985 20	156 00	42 25
Ontonagon	20,893 89	22,024 93	1,915 92	353 00	424 00
Oscsola	25,915 00	31,788 14	5,763 96	191 96	49 75
Oscoda	----------	904 15	922 12	80 50	16 50
Otsego	8,751 50	10,513 43	1,462 25	74 25	23 25
Ottawa	24,125 00	25,313 65	1,533 78	153 70	230 00
Presque Isle	2,600 88	7,780 00	1,714 25	108 00	53 50
Roscommon	3,600 00	4,645 26	818 29	53 00	25 50
Saginaw	49,485 00	50,077 58	2,995 11	263 00	3,196 96
St. Clair	25,021 20	25,726 36	513 90	168 75	83 75
St. Joseph	7,600 00	10,402 58	532 40	105 25	24 25
Sanilac	19,098 00	20,320 86	2,204 31	256 94	58 75
Schoolcraft	5,800 00	6,072 30	736 93	225 90	196 50
Shiawassee	32,579 60	32,683 38	2,376 21	139 75	313 92
Tuscola	26,115 00	26,811 01	2,384 61	207 92	38 48
Van Buren	8,725 00	9,760 33	3,301 57	134 25	32 50
Washtenaw	30,232 12	31,084 11	238 49	265 00	484 00
Wayne	80,951 92	83,662 45	1,919 52	347 00	256 25
Wexford	27,550 00	28,844 37	2,553 10	129 25	278 50

TABLE VIII.

Cost per capita of public schools of the State for the school year ending September 2, 1895.

Counties.	No. of pupils included in school census in—		No. of pupils enrolled in—		Cost per capita for instruction based on school census in—			Cost per capita for instruction based on enrollment in—			Total expenses per capita during year based on enrollment in—		
	Graded school districts.	Ungraded school districts.	Graded school districts.	Ungraded school districts.	Graded school districts.	Ungraded school districts.	All school districts.	Graded school districts.	Ungraded school districts.	All school districts.	Graded school districts.	Ungraded school districts.	All school districts.
Totals	397,689	302,139	264,626	212,058	$6 47	$4 60	$5 66	$9 72	$6 56	$8 31	$17 33	$8 68	$13 48
Alcona	488	1,422	391	959	$4 92	$4 21	$4 40	$6 15	$6 26	$6 23	$8 51	$7 99	$8 14
Alger	291	221	190	172	8 89	15 29	11 65	13 62	19 65	16 48	19 88	30 47	24 91
Allegan	4,125	8,139	3,292	5,950	6 56	4 13	4 94	8 22	5 65	6 56	10 82	7 12	8 44
Alpena	5,244	1,555	2,229	996	3 67	4 19	3 79	8 64	6 55	7 99	11 98	8 78	10 99
Antrim	1,592	2,446	1,449	1,716	7 68	6 07	6 70	8 44	8 65	8 55	12 29	12 09	12 18
Arenac	961	1,541	656	1,021	3 59	3 81	3 72	5 25	5 75	5 55	14 21	7 81	10 31
Baraga	1,414	158	806	104	5 63	13 35	6 41	9 88	20 29	11 07	14 10	32 88	16 25
Barry	1,683	5,408	1,673	4,279	8 33	5 32	6 04	8 38	6 72	7 19	12 29	8 05	9 25
Bay	17,094	5,588	7,739	2,979	4 91	2 92	4 41	10 83	5 48	9 34	17 45	8 61	14 99
Benzie	1,422	1,127	1,063	792	6 39	7 38	7 11	9 22	10 51	9 77	15 39	14 77	15 13
Berrien	6,992	6,647	5,812	4,833	7 20	4 60	5 99	8 65	6 32	7 59	14 88	8 25	11 87
Branch	2,491	4,386	2,136	3,330	9 61	5 49	7 00	11 26	7 24	8 81	15 96	9 06	11 75
Calhoun	7,479	5,219	5,392	3,927	7 47	6 05	6 89	10 37	8 04	9 39	15 27	9 91	13 01
Cass	1,996	4,021	1,825	3,127	9 10	6 09	7 09	9 95	7 83	8 62	13 25	9 57	10 93
Charlevoix	1,429	2,394	1,186	1,742	6 18	5 62	5 83	7 44	7 72	7 61	12 03	10 94	11 38
Cheboygan	2,814	2,150	1,440	1,386	4 27	5 09	4 63	8 35	7 90	8 13	30 58	11 94	21 44
Chippewa	2,616	1,927	1,285	1,331	5 71	4 46	5 18	11 64	6 46	9 01	17 03	8 53	12 70
Clare	1,051	1,326	822	986	5 62	5 36	5 47	7 18	7 21	7 20	10 44	12 79	11 73
Clinton	2,191	5,444	1,981	3,702	8 37	4 69	5 74	9 25	6 89	7 72	13 19	8 84	10 36
Crawford	373	339	384	242	10 23	9 69	9 97	9 93	13 58	11 34	15 06	16 91	15 78
Delta	3,327	2,052	1,791	1,449	5 59	5 61	5 60	10 38	7 95	9 29	17 18	12 01	14 88
Dickinson	3,740	402	2,801	256	6 54	7 42	6 63	8 74	11 66	8 99	16 45	23 62	17 04
Eaton	3,458	5,513	3,124	4,233	8 76	5 29	6 61	9 63	6 88	8 05	12 80	8 22	10 16
Emmet	1,634	1,538	1,045	975	6 22	6 29	6 26	9 73	9 93	9 82	13 95	13 94	13 94
Genesee	4,906	6,333	3,846	4,912	9 82	4 73	6 95	12 53	6 09	8 92	17 84	7 69	12 15
Gladwin	267	1,303	230	843	7 49	4 26	4 81	7 14	6 59	6 73	8 95	9 47	9 35
Gogebic	2,912	381	2,314	351	7 29	11 97	7 83	9 59	12 99	10 06	18 61	20 29	18 85
Grand Traverse	2,677	2,527	2,274	1,810	7 29	5 13	6 24	8 57	7 17	7 95	15 76	9 08	12 79
Gratiot	2,691	6,607	2,417	5,063	6 81	3 80	4 67	7 53	4 96	5 81	10 98	6 47	7 93
Hillsdale	3,189	5,045	2,468	3,933	7 68	5 23	6 18	9 93	6 72	7 95	15 12	8 45	11 02
Houghton	13,967	770	8,488	539	6 28	7 27	6 33	10 34	10 39	10 34	16 95	14 31	16 79
Huron	3,569	8,787	2,400	5,069	4 41	3 02	3 42	6 55	5 24	5 66	10 60	7 75	8 67
Ingham	6,552	4,801	4,694	3,626	7 44	5 21	6 49	10 38	6 88	8 85	15 89	8 46	12 65
Ionia	4,591	5,538	3,598	3,974	7 48	4 75	5 99	9 55	6 61	8 01	13 85	8 37	10 96
Iosco	2,774	1,054	2,026	637	5 44	4 16	5 09	7 45	6 88	7 31	9 58	9 31	9 51
Iron	1,069	384	950	260	12 22	9 89	11 60	13 75	14 61	13 94	19 59	25 56	20 88
Isabella	1,333	5,925	965	4,128	6 65	3 79	4 31	9 18	5 44	6 14	12 79	7 35	8 38
Jackson	7,263	5,354	5,003	4,017	7 87	5 57	6 39	11 43	7 42	9 64	16 01	9 22	12 99
Kalamazoo	7,130	3,996	4,614	2,951	7 24	5 94	6 77	11 18	8 05	9 98	17 08	9 96	14 30
Kalkaska	488	1,138	428	926	8 55	8 61	8 59	9 75	10 58	10 32	12 95	13 83	13 56
Kent	29,444	9,483	16,819	6,730	6 91	4 46	6 31	12 09	6 29	10 43	17 38	8 01	14 70
Keweenaw	430	211	336	200	5 85	10 90	7 51	7 49	11 50	8 98	10 28	13 38	11 43
Lake	815	959	691	765	5 58	6 85	6 26	6 58	8 59	7 64	8 48	11 17	9 89
Lapeer	3,157	6,199	2,528	4,582	6 86	4 22	5 11	8 57	5 71	6 72	11 70	7 39	8 92
Leelanau	629	2,667	436	1,702	4 69	3 91	4 06	6 76	6 13	6 26	8 41	9 12	8 97

TABLE VIII.—CONCLUDED.

Counties.	No. of pupils included in school census in—		No. of pupils enrolled in—		Cost per capita for instruction based on school census in—			Cost per capita for instruction based on enrollment in—			Total expenses per capita during year based on enrollment in—		
	Graded school districts.	Ungraded school districts.	Graded school districts.	Ungraded school districts.	Graded school districts.	Ungraded school districts.	All school districts.	Graded school districts.	Ungraded school districts.	All school districts.	Graded school districts.	Ungraded school districts.	All school districts.
Lenawee	6,057	7,314	4,538	5,447	$7 40	$5 07	$6 13	$9 88	$6 51	$8 20	$13 96	$8 76	$11 13
Livingston	1,460	4,320	1,208	3,427	9 13	5 19	6 18	11 04	6 54	7 71	15 74	8 01	10 02
Luce	444	111	336	84	10 84	14 86	11 65	13 16	19 64	14 37	22 75	40 69	26 10
Mackinac	1,096	1,209	911	752	5 77	5 15	5 45	6 95	8 29	7 55	10 41	11 29	10 81
Macomb	4,105	6,663	2,606	3,672	6 11	3 53	4 51	9 63	6 40	7 74	13 52	7 84	10 19
Manistee	6,787	2,382	4,251	1,511	5 38	4 70	5 21	8 60	7 41	8 29	18 42	11 02	16 48
Marquette	10,863	1,199	6,856	827	6 15	8 37	6 37	9 74	12 14	10 00	15 95	20 94	16 49
Mason	3,305	2,871	2,282	2,071	7 21	4 68	6 03	10 54	6 49	8 60	14 86	9 65	12 37
Mecosta	2,354	4,742	1,766	3,311	6 48	3 95	4 79	8 64	5 66	6 69	11 17	7 40	8 71
Menominee	6,122	1,524	3,910	937	5 61	5 00	5 49	8 78	8 14	8 66	29 05	11 76	25 71
Midland	1,446	3,107	1,165	2,031	5 00	3 69	4 11	6 21	5 65	5 85	16 47	7 77	10 94
Missaukee	839	1,302	666	980	6 15	7 88	7 20	7 75	10 48	9 38	11 24	13 85	12 80
Monroe	3,087	7,987	1,602	5,434	4 55	3 56	3 83	8 76	5 22	6 03	13 14	6 41	7 94
Montcalm	4,008	6,807	3,427	4,816	6 73	3 70	4 82	7 87	5 22	6 33	11 01	6 43	8 33
Montmorency	387	412	324	312	7 64	8 86	8 28	9 13	11 71	10 39	13 92	22 13	17 95
Muskegon	9,118	3,907	6,555	2,625	6 18	3 66	5 42	8 60	5 45	7 70	22 28	7 53	18 07
Newaygo	1,543	4,469	1,355	3,338	6 54	4 35	4 91	7 45	5 82	6 29	9 48	7 28	7 91
Oakland	4,792	6,234	4,160	4,598	8 08	5 94	6 87	9 21	8 05	8 65	13 11	10 21	11 59
Oceana	1,261	4,311	992	3,161	6 64	4 13	4 69	8 44	5 63	6 30	11 92	7 14	8 28
Ogemaw	642	1,286	533	845	4 66	5 76	5 39	5 61	8 76	7 55	10 24	12 58	11 67
Ontonagon	1,170	374	859	326	10 19	11 59	10 53	13 89	13 30	13 73	27 52	20 42	25 57
Osceola	2,122	3,575	1,787	2,558	7 14	4 76	5 68	8 47	6 61	7 38	22 96	9 12	14 81
Oscoda	.....	379	.....	312	.....	7 60	7 60	.....	9 23	9 23	.....	12 21	12 21
Otsego	556	848	410	555	6 51	8 39	7 64	8 82	12 83	11 18	12 74	17 89	15 70
Ottawa	7,770	6,090	5,528	4,070	5 11	3 65	4 48	7 19	5 47	6 46	11 48	7 31	9 68
Presque Isle	305	1,551	216	668	3 77	3 14	3 24	5 32	7 29	6 81	5 85	10 51	9 37
Roscommon	276	172	167	111	4 42	6 50	5 22	7 30	10 06	8 42	10 90	13 24	11 83
Saginaw	13,096	9,178	11,914	5,807	6 74	3 46	5 64	10 25	5 47	8 68	17 16	7 26	13 93
St. Clair	10,358	8,547	5,679	5,750	4 58	3 70	4 15	8 26	5 50	6 87	16 47	6 98	11 69
St. Joseph	2,998	3,706	2,650	2,985	9 30	5 54	7 22	10 51	6 99	8 66	15 68	8 89	12 11
Sanilac	3,761	8,567	2,901	6,256	4 45	3 36	3 69	5 77	4 60	4 97	7 74	6 33	6 77
Schoolcraft	1,097	682	880	528	8 22	10 35	9 04	10 87	13 57	11 91	16 33	18 25	17 08
Shiawassee	4,027	5,245	3,399	3,894	8 07	4 60	6 11	9 57	6 19	7 77	19 92	7 74	13 42
Tuscola	3,268	8,226	2,500	5,725	6 01	3 32	4 08	7 86	4 77	5 71	11 35	6 84	8 21
Van Buren	3,648	5,572	3,339	4,163	7 44	4 95	5 93	8 13	6 63	7 29	10 92	8 57	9 62
Washtenaw	6,528	5,805	4,927	4,017	9 01	5 28	7 34	12 15	7 62	10 12	22 68	9 58	16 80
Wayne	84,138	8,764	48,447	5,017	5 83	3 60	5 62	10 13	6 30	9 77	24 24	9 42	22 83
Wexford	2,099	2,264	1,635	1,672	8 59	6 39	7 45	11 03	8 65	9 83	16 37	13 26	14 80

TABLE IX.

Statistics of township and district libraries as reported by school inspectors for the year ending September 2, 1895.

Counties.	No. of townships using library money for general school purposes.	No. of townships forfeiting library money.	No. of townships maintaining libraries.	No. of volumes added to township libraries during the year.	Whole No. of volumes in township libraries.	Amount of taxes voted for township libraries.	Amount of fines, etc., received from county treasurer for township libraries.	Amount paid for books and care of township libraries.	Amount of township library money on hand September 2, 1895.	No. of districts maintaining libraries.	No. of volumes added to district libraries during the year.	Whole No. of volumes in district libraries.	Amount paid for the support of such libraries.	Amount of fines, etc., received from county treasurer for such libraries.
Totals	351	376	484	8,768	160,140	$3,916 23	$9,842 74	$16,027 04	$16,511 66	1,753	45,479	528,302	$94,531 56	$96,518 20
Alcona	1	6	4	97	1,217		$18 22	$94 40	$53 90	7	59	214	$15 00	
Alger	3	4	0								10	123		
Allegan	0	13	11	327	3,734	$100 00	411 90	393 34	249 32	111	835	5,532	148 79	$928 76
Alpena	1	3	3	25	285		19 50	25 50	74 04	5	473	2,879	762 74	645 69
Antrim	1	2	12	201	3,424		1 25	556 13	227 62	12	151	777	15 30	14 38
Arenac	6	5	0				5 00			4	77	353	43 29	98 33
Baraga	4	1	0				21 34	145 86	21 34		2	879	154 09	21 37
Barry	7	6	3	62	1,134			47 15	1 15	43	420	3,326	238 35	85 21
Bay	3	3	8	299	3,106		231 02	223 21	287 80	14	597	19,000	274 28	163 98
Benzie	1	1	10	70	2,600		80 46	197 56	228 24	8	130	311	45 64	6 20
Berrien	4	8	8	222	4,718	208 74	117 88	477 06	171 04	70	1,844	8,005	777 41	392 85
Branch	9	3	4	157	2,066	225 00	39 64	360 75	25 00	27	32	2,106	56 49	128 94
Calhoun	11	5	4	53	1,460		31 23	58 40	98 48	50	1,360	18,581	1,177 89	726 92
Cass	6	4	5	80	1,830		45 64	83 47	47 35	37	284	3,668	119 51	263 46
Charlevoix	5	5	9	291	1,771	155 00	45 27	252 93	212 98	9	171	657	94 90	127 81
Cheboygan	5	5	5	43	1,024	10 00	50 63	38 67	138 83	4	344	2,853	585 09	376 75
Chippewa	3	4	5		693			12 54	28 95	4	50	1,653	115 01	221 50
Clare	1	8	4		806			12 29	159 59	3	36	533	28 07	118 29
Clinton	6	7	3		577		89 31	8 00	25 40	29	244	1,618	296 46	963 51
Crawford	0	2	7	147	2,120	25 00	274 21	306 21	48 16	4	52	221	32 00	2 70
Delta	5	3	4	105	890		309 40	94 25	395 10	3	121	2,106	706 64	578 80
Dickinson	4	2	0					170 73	304 20	2	628	5,250	732 92	532 05
Eaton	3	4	9	140	5,457		319 46	223 12	428 86	33	453	3,069	239 42	451 82
Emmet	0	1	11	149	1,326		173 87	218 05	145 56	12	274	818	88 21	
Genesee	8	9	1	55	406		80 95	51 17	27 63	55	902	11,174	1,349 73	827 10
Gladwin	1	9	1		79	30 00			6 00	2	10	247	15 00	
Gogebic	1	4	0							3	280	1,792	121 67	186 87
Grand Traverse	2	0	12	46	4,133	25 00	734 77	370 71	628 27	10	302	1,603	589 71	128 11
Gratiot	7	9	1		30		72 31		52 65	47	862	4,647	333 76	866 80
Hillsdale	11	6	1		200		42 69	24 00	24 68	38	374	1,784	199 24	465 78
Houghton	3	7	2	200	1,861	500 00	816 93	853 81	976 61	11	994	7,779	1,357 94	5,024 73
Huron	5	9	12	100	2,869		2 08	195 15	155 92	25	361	1,402	179 80	8 00
Ingham	12	4	0							38	1,259	10,393	2,341 19	1,153 41

Ionia	11	3	2		53		22 48			26	422	2,868	457 82	787 98
Iosco	3	3	5	4	958	25 00	27 38	60 54	211 59	5	85	1,396	21 50	59 27
Iron	5	3	0								59	1,173	150 00	
Isabella	6	2	8	142	1,159		149 36	90 96	296 95	11	201	891	55 00	146 01
Jackson	10	8	1	41	1,073		65 04	36 86	23 86	64	823	7,109	204 29	1,108 78
Kalamazoo	9	3	4	43	1,490	30 00	110 07	91 38	91 52	57	1,637	24,326	3,825 58	1,879 24
Kalkaska	3	4	5	68	483		48 67	47 00	40 55	10	44	782	71 49	130 25
Kent	10	4	10	346	5,679	100 00	345 92	535 06	207 05	48	3,042	47,398	7,808 97	5,177 76
Keweenaw	4	0	1		250			25 00	137 46			1,633		
Lake	0	3	10	40	1,940		57 45	228 93	59 24	5	38	968	45 15	23 96
Lapeer	7	7	4	35	1,200		55 89	76 28	57 66	43	743	4,047	164 30	372 54
Leelanau	0	0	11	432	2,390	10 00	62 56	415 10	119 01	9	152	433	87 43	367 37
Lenawee	6	10	6	174	4,792		117 77	124 18	85 78	75	1,279	19,216	2,362 37	2,053 69
Livingston	9	4	3	23	1,657		41 69	34 38	24 60	6	17	843	41 93	651 86
Luce	2	2	0						68 87			860	99 75	41 95
Mackinac	3	6	3		608		38 24	138 98	40 05	2	36	1,064	39 88	127 89
Macomb	2	6	7		1,499		170 76	50 00	412 90	22	587	5,836	894 79	1,011 15
Manistee	2	4	6	97	2,645		142 58	186 77	211 30	14	288	2,798	595 00	282 33
Marquette	1	4	10	14	2,280		4 69	194 00	1,013 95	3	1,640	12,746	1,315 73	2,120 95
Mason	1	1	11	140	3,383	280 00	143 94	272 53	182 95	11	146	2,642	84 50	105 91
Mecosta	4	2	10	38	2,334	10 00	46 82	120 45	91 96	17	186	2,109	73 79	225 47
Menominee	5	1	3	9	1,251		147 19	70 38	689 42	12	884	2,151	592 76	371 82
Midland	3	5	8	15	514			24 00	41 19	9	40	1,532	21 65	4 11
Missaukee	2	0	10	240	1,635	25 00		279 27	102 03	11	113	468	75 20	71 75
Monroe	2	2	11	52	2,615		27 52	89 91	90 21	15	288	3,826	640 81	523 72
Montcalm	4	8	8	134	1,652		223 74	119 52	252 49	26	390	2,155	155 73	392 56
Montmorency	3	3	1		77			10 00	60 00		17	209	72 00	
Muskegon	1	3	13	100	4,403	275 00	192 45	361 65	303 02	15	1,479	22,815	3,989 59	460 21
Newaygo	2	6	14	126	3,417	50 00	88 48	158 67	147 97	8	96	463	40 15	81 89
Oakland	12	10	3	115	1,836		87 75	113 52	169 16	26	353	5,334	342 47	739 07
Oceana	0	0	16	492	5,346	200 00	353 98	612 22	505 58	27	188	1,242	14 15	20 66
Ogemaw	3	6	6	50	1,610		92 06	70 00	95 99	2	25	66	5 00	58 90
Ontonagon	4	1	2	5	494	25 00	228 53		285 31		15	668	52 00	673 76
Osceola	2	3	11	306	3,022	25 00	288 31	520 45	387 77	12	154	947	80 09	108 58
Oscoda	2	5	1		396	35 00	16 42	27 50	66 65					10 24
Otsego	2	0	7	52	2,165	224 97	116 26	184 95	164 71	2	30	119	87 06	141 45
Ottawa	3	1	11	338	4,761	35 00	321 05	300 79	360 04	38	638	7,217	655 97	323 59
Presque Isle	2	8	1		30					5	10	319	73 16	30 71
Roscommon	2	3	3		452		16 08	60 00	81 83			114		
Saginaw	7	9	11	128	5,266		216 69	275 99	549 12	42	1,442	22,203	2,553 42	1,024 32
St. Clair	10	5	8	244	3,596		221 21	282 57	359 19	39	699	5,266	638 36	843 20
St. Joseph	9	1	6	728	10,550	1,001 25	86 48	2,761 24	522 44	52	329	3,095	290 90	294 82
Sanilac	6	10	10	314	2,120		207 12	194 34	150 69	28	181	1,216	42 74	492 74
Schoolcraft	2	4	2	56	198		19 43	105 00	121 47	5	280	1,095	725 82	1,197 86
Shiawassee	7	9	0			10 00	17 43	15 00	15 98	18	291	2,542	187 47	595 95
Tuscola	4	8	11	293	3,175	25 00	282 22	191 10	303 77	30	598	3,037	89 76	488 11
Van Buren	7	3	8	316	4,809	226 27	396 76	547 89	398 45	35	682	2,359	472 21	488 52
Washtenaw	4	10	6	12	1,957		141 85	65 00	132 99	23	263	9,882	911 84	340 96
Wayne	4	9	4	2	4,077		203 56	157 45	1,204 79	109	10,546	160,295	50,031 34	54,549 35
Wexford	0	2	13	135	3,038	25 00	163 90	206 77	328 48	6	52	1,229	60 00	25 87

TABLE VI.

Expenditures of school districts as reported by school inspectors for the year ending September 2, 1895.

Counties.	Ordinary expenditures for maintaining the schools.							Paid on indebtedness (principal).	Amount on hand Sept. 2, 1895.	Total expenditures including am't on hand and paid on indebtedness.
	Paid male teachers.	Paid female teachers.	Paid for building and repairs.	Paid for books and care of library.	Paid interest on loans.	Paid for all other purposes.	Total net expenses.			
Totals	$1,040,746 07	$2,922,335 99	$976,440 49	$94,531 56	$123,334 11	$1,270,614 84	$6,428,003 06	$318,810 55	$1,166,822 15	$7,913,635 76
Alcona	$4,027 50	$4,384 76	$660 13	$15 00	$56 56	$1,847 62	$10,991 57	$525 81	$2,039 20	$13,556 58
Alger	1,525 00	4,442 50	471 87	.....	365 06	2,213 68	9,018 11	1,740 97	212 64	10,971 72
Allegan	20,174 58	40,508 90	3,328 00	148 79	1,180 34	12,693 91	78,034 52	5,940 97	18,041 86	102,017 35
Alpena	5,935 28	19,864 11	1,570 25	762 74	124 05	7,189 14	35,445 57	659 13	3,295 88	39,400 58
Antrim	10,114 00	16,953 25	1,558 59	15 30	1,261 27	8,664 44	38,566 85	1,718 86	6,129 82	46,415 53
Arenac	2,746 00	6,572 45	4,919 58	43 29	462 65	2,557 49	17,301 46	1,537 93	1,649 73	20,489 12
Baraga	3,240 00	6,840 00	575 92	154 09	255 37	3,722 77	14,788 15	1,450 00	3,072 76	19,310 91
Barry	14,311 78	28,497 13	1,634 02	238 35	589 50	9,766 07	55,036 85	9,588 94	9,863 49	74,489 28
Bay	21,231 87	78,952 33	7,335 10	274 28	5,500 30	47,446 38	160,740 26	2,637 89	17,863 39	181,241 54
Benzie	5,585 50	12,541 50	2,095 94	45 64	1,809 40	5,993 43	28,071 41	1,746 19	4,459 15	34,276 75
Berrien	29,315 63	51,579 28	16,313 74	777 41	2,497 57	25,917 12	126,400 75	7,923 90	21,822 26	156,146 91
Branch	16,443 11	31,725 35	3,407 47	56 49	1,292 67	11,340 78	64,265 87	3,765 94	19,608 32	87,640 13
Calhoun	19,163 50	68,337 18	4,057 85	1,177 89	2,171 13	26,368 03	121,275 58	17,262 88	13,308 32	151,846 78
Cass	14,687 25	27,991 36	1,846 20	119 51	795 81	8,690 27	54,130 40	11,224 96	11,223 66	76,579 02
Charlevoix	6,215 30	16,068 88	2,626 76	94 90	1,629 27	6,698 44	33,333 55	2,605 88	5,140 30	41,079 73
Cheboygan	7,360 56	15,629 80	20,201 49	585 09	2,006 73	14,812 17	60,595 83	1,166 86	4,139 92	65,902 61
Chippewa	5,870 95	17,697 45	1,545 40	115 01	1,071 72	6,944 48	33,245 01	905 59	1,767 03	35,917 63
Clare	3,237 70	9,784 05	2,821 43	28 07	859 93	4,474 19	21,205 37	590 00	10,066 67	31,862 04
Clinton	11,924 40	31,950 50	3,491 40	296 46	597 39	10,607 45	58,867 60	5,450 58	16,267 61	80,585 79
Crawford	1,513 13	5,589 42	987 76	32 00	62 46	1,693 60	9,878 37	209 32	4,745 87	14,833 56
Delta	6,509 45	23,612 97	5,107 45	706 64	2,005 85	10,249 66	48,192 02	1,363 24	10,672 01	60,227 27
Dickinson	6,070 00	21,397 52	5,678 33	732 92	3,517 94	14,720 78	52,117 49	8,974 10	8,469 39	69,560 98
Eaton	18,994 76	40,276 50	1,803 18	239 42	421 36	13,079 05	74,814 27	2,972 41	13,394 91	91,181 59
Emmet	4,328 75	15,520 45	1,616 68	88 21	1,102 42	5,515 76	28,172 27	1,771 39	2,367 45	32,311 11
Genesee	22,217 25	55,943 92	4,303 07	1,349 73	3,863 57	18,737 47	106,415 01	10,029 36	10,790 36	127,234 73
Gladwin	3,065 45	4,492 07	862 11	15 00	161 15	1,898 44	10,494 22	569 40	2,141 75	13,205 37
Gogebic	4,525 00	21,268 75	841 40	121 67	2,561 66	19,024 44	48,342 92	3,000 00	7,803 85	59,146 77
Grand Traverse	7,964 28	24,524 51	1,990 58	589 71	1,426 15	15,754 19	52,249 42	2,046 74	11,515 18	65,811 34
Gratiot	15,822 88	27,648 49	3,857 83	333 76	2,433 82	9,240 87	59,337 65	6,085 93	15,144 45	80,568 03
Hillsdale	18,842 66	32,084 27	7,472 55	199 24	609 23	11,365 51	70,573 46	4,821 40	8,082 00	83,476 86
Houghton	21,885 63	71,484 03	14,424 13	1,357 94	1,890 21	40,551 33	151,593 27	2,881 50	47,417 10	201,891 87
Huron	20,195 36	22,099 50	11,128 58	179 80	1,548 08	9,608 80	64,760 12	3,466 87	9,664 19	77,891 18
Ingham	20,868 65	52,917 95	3,798 22	2,341 19	2,948 32	22,507 55	105,381 88	4,335 83	61,093 09	170,810 80
Ionia	18,070 84	42,604 32	6,698 37	457 82	531 82	14,669 80	83,032 97	2,528 51	19,384 48	104,945 96
Iosco	4,333 08	15,153 51	835 62	21 50	139 98	4,854 28	25,337 97	1,744 76	10,152 64	37,235 37

Iron	3,942 00	12,920 00	1,192 50	150 00	1,066 95	5,992 92	25,264 37	1,942 61	6,879 88	34,086 86
Isabella	8,608 35	22,705 31	3,165 06	55 00	1,332 62	6,842 11	42,708 45	1,925 00	7,778 61	52,412 06
Jackson	23,941 86	63,078 38	2,500 08	204 29	1,806 90	25,645 13	117,176 64	5,685 60	17,519 61	140,381 85
Kalamazoo	16,831 95	58,557 67	5,896 81	2,825 58	842 99	22,264 37	107,219 37	7,719 64	14,832 97	130,771 98
Kalkaska	4,897 88	9,077 25	865 54	71 49	200 36	3,245 57	18,358 09	2,588 24	4,277 39	25,223 72
Kent	40,339 83	205,467 82	9,042 01	7,803 97	18,477 44	65,106 91	346,237 98	10,776 93	101,902 26	458,917 17
Keweenaw	2,840 00	1,976 25	91 90	----------	2 80	1,218 69	6,129 64	----------	4,289 29	10,418 93
Lake	3,251 00	7,874 25	254 06	45 15	33 98	2,947 64	14,406 08	437 94	6,377 85	21,221 87
Lapeer	16,743 00	31,068 76	4,050 10	164 30	770 82	10,646 27	63,463 25	6,709 47	10,963 90	81,136 62
Leelanau	3,999 35	9,387 43	2,586 74	87 43	206 60	2,927 18	19,196 73	1,321 86	3,482 72	24,001 31
Lenawee	25,820 22	56,115 62	6,443 67	2,362 37	776 11	19,609 79	111,127 78	5,470 04	17,298 74	133,896 56
Livingston	12,393 30	23,364 15	1,849 97	41 98	278 71	8,533 77	46,461 83	2,068 68	9,969 49	58,495 00
Luce	2,800 00	3,665 00	1,004 27	99 75	341 97	3,835 96	11,746 95	1,014 28	1,543 13	14,304 36
Mackinac	3,202 00	9,359 70	1,054 49	39 88	972 62	3,270 68	17,899 37	2,437 55	2,559 96	22,896 88
Macomb	17,804 83	30,799 66	6,126 65	894 79	352 92	8,038 04	64,016 89	2,891 72	10,953 94	77,862 55
Manistee	13,515 00	34,249 20	21,897 77	595 00	2,291 09	22,433 89	94,981 95	4,555 75	8,852 10	108,389 80
Marquette	14,620 84	62,239 68	8,653 42	1,315 73	3,071 07	36,834 99	126,735 73	10,100 00	16,680 83	153,516 56
Mason	8,901 75	28,384 55	3,367 89	84 50	3,457 01	9,412 77	53,608 47	7,298 32	5,024 65	65,931 44
Mecosta	7,663 55	26,334 42	2,476 71	73 79	253 28	7,446 90	44,248 65	1,258 04	12,538 43	58,045 12
Menominee	6,872 00	35,109 65	62,732 16	592 76	4,814 45	14,487 69	124,608 71	1,850 08	11,878 04	138,336 83
Midland	2,561 66	16,152 35	10,151 84	21 65	49 59	6,041 66	34,978 75	444 98	6,265 14	41,688 87
Missaukee	5,700 00	9,729 69	1,927 72	75 30	281 44	3,356 30	21,070 45	901 50	6,629 11	28,601 06
Monroe	15,348 09	27,126 65	2,212 19	640 81	497 16	10,096 13	55,920 43	2,877 05	9,159 79	67,957 27
Montcalm	14,304 56	37,868 03	3,619 73	155 73	736 41	12,014 11	68,698 57	1,553 63	15,930 49	86,182 69
Montmorency	2,082 50	4,531 00	2,544 79	72 00	74 00	2,112 12	11,416 41	600 00	1,167 94	13,184 35
Muskegon	14,245 41	56,463 13	2,962 27	3,989 59	5,108 07	83,089 68	165,858 15	1,778 77	9,963 29	177,600 21
Newaygo	8,657 62	20,884 99	1,064 58	40 15	189 71	6,321 86	37,158 91	1,013 32	14,372 92	52,545 15
Oakland	27,593 91	48,184 32	5,665 17	342 47	1,583 62	18,128 90	101,498 39	6,925 63	10,568 21	118,992 23
Oceana	9,447 31	16,728 43	1,193 09	14 15	516 82	6,494 12	34,393 92	2,277 92	9,257 23	45,929 07
Ogemaw	3,437 00	6,961 75	2,064 38	5 00	519 88	3,100 20	16,088 21	736 51	5,575 81	22,400 53
Ontonagon	5,900 00	10,369 60	6,858 38	52 00	675 68	6,450 06	30,305 72	17,796 79	2,645 61	50,748 12
Osceola	8,080 90	24,009 55	21,867 51	80 09	1,713 43	8,639 99	64,371 47	5,086 04	7,300 94	76,758 45
Oscoda	761 00	2,120 41	351 39	----------	----------	576 16	3,808 96	105 40	1,039 04	4,953 40
Otsego	3,017 40	7,721 20	1,236 90	87 06	524 13	2,571 42	15,158 11	738 25	3,921 64	19,818 00
Ottawa	20,569 37	41,434 75	6,181 70	655 97	1,686 81	22,390 65	92,919 25	4,203 66	10,342 39	107,465 30
Presque Isle	3,662 50	2,360 92	607 17	73 16	57 04	1,523 70	8,284 49	954 99	2,502 37	11,741 85
Roscommon	1,070 00	1,269 44	10 00	----------	202 00	738 75	3,290 19	----------	1,369 43	4,659 62
Saginaw	34,844 00	119,046 91	18,453 03	2,553 42	2,840 55	69,121 96	246,859 87	6,675 38	24,722 17	278,257 42
St. Clair	17,011 50	61,578 34	23,909 08	638 36	1,208 70	29,324 39	133,670 37	2,044 95	17,698 45	153,413 77
St. Joseph	16,939 08	31,454 81	3,040 74	290 90	708 84	15,216 20	67,650 57	5,425 03	7,674 13	80,749 73
Sanilac	24,980 25	20,587 41	4,444 55	42 74	1,052 01	10,966 22	62,073 18	3,588 85	11,935 67	77,647 70
Schoolcraft	5,794 50	10,389 87	1,770 65	725 82	379 50	4,127 28	23,187 62	322 00	8,785 52	32,295 14
Shiawassee	19,238 56	37,428 65	25,469 87	187 47	2,000 08	15,552 47	99,877 10	5,883 34	12,628 40	118,388 84
Tuscola	17,329 50	29,655 45	6,385 27	89 76	1,787 99	12,289 88	67,537 85	7,989 51	14,829 92	90,357 28
Van Buren	19,119 42	35,637 43	3,647 25	472 21	675 39	12,634 37	72,186 07	4,454 09	14,691 66	91,331 82
Washtenaw	27,566 50	62,927 60	25,494 50	911 84	1,469 01	31,908 96	150,278 41	7,874 37	9,317 01	167,969 79
Wayne	68,782 54	453,921 00	488,772 70	50,031 34	3,675 19	156,727 80	1,221,910 57	9,153 47	226,120 84	1,457,184 88
Wexford	5,415 20	27,099 20	7,415 24	60 00	2,017 64	6,938 84	48,946 12	4,114 33	11,442 51	64,502 96

TABLE XI.

Private and select schools for the year ending September 2, 1895.

Counties.	No. of schools.	No. of teachers.		Estimated No. of pupils.
		Male.	Female.	
Totals	378	339	756	43,636
Alcona				
Alger				
Allegan	4	3	2	275
Alpena				
Antrim				
Arenac	1	1		50
Baraga				
Barry				
Bay	15	12	31	2,965
Benzie				
Berrien	7	5	10	401
Branch	2	1	1	30
Calhoun	7	16	24	1,087
Cass				
Charlevoix	4	3	5	181
Cheboygan	2	3	7	320
Chippewa	1		4	200
Clare				
Clinton	4		10	455
Crawford				
Delta	2		18	900
Dickinson	1		3	175
Eaton	1		1	10
Emmet	4	3	5	265
Genesee	4	7	11	375
Gladwin	2		2	40
Gogebic	2	1	10	500
Grand Traverse	3		11	210
Gratiot	3	8	7	252
Hillsdale	1		1	10
Houghton	9	4	27	1,875
Huron	11	8	9	756
Ingham	8	6	7	500
Ionia	6	5	7	420
Iosco	1		4	200
Iron				
Isabella	2		6	305
Jackson	2	1	2	28
Kalamazoo	10	12	30	750
Kalkaska				
Kent	25	26	64	3,609
Keweenaw				
Lake				
Lapeer				
Leelanau	1	1		45
Lenawee	11	9	2	195
Livingston				
Luce				
Mackinac				
Macomb	19	16	11	1,270
Manistee	7	5	19	1,425
Marquette	5		13	1,300
Mason				
Mecosta	5	8	6	625
Menominee	3		6	300
Midland				
Missaukee				
Monroe	15	11	18	1,011
Montcalm				
Montmorency				
Muskegon	9	1	18	840
Newaygo				
Oakland	1		1	12
Oceana	1		1	30
Ogemaw	1		1	12
Ontonagon				
Osceola	2	2	1	60
Oscoda				
Otsego				
Ottawa	6	7	8	268
Presque Isle	3	3		50
Roscommon	1	1		40
Saginaw	24	19	22	1,853
St. Clair	18	9	31	1,417
St. Joseph	4	5	3	122
Sanilac	3	2	1	70
Schoolcraft				
Shiawassee	2	1	2	60
Tuscola	7	5	4	281
Van Buren				
Washtenaw	11	9	16	680
Wayne	73	100	249	14,461
Wexford	2		4	65

TABLE XII.

Examination and certification of teachers as reported by the county commissioners of schools for the year ending July 1, 1895.

Counties.	No. of public examinations.	Whole number of applicants for regular certificates.	No. of applicants for special certificates.	Number of applicants receiving certificates.				No. licensed without experience in teaching.	No. having received normal school instruction.	No. of teachers having attended institute during the year.	No. of teachers having State certificates.	No. of teachers holding normal school certificates.	No. of legally qualified teachers in the county.	No. making teaching a permanent occupation.	No. of certificates suspended.	No. of certificates revoked.	Average per cent required for certificates.		
				First grade.	Second grade.	Third grade.	Specials.										First grade.	Second grade.	Third grade.
Totals	396	16,626	1,178	125	1,181	8,561	804	2,357	1,201	5,305	139	448	11,914	5,786	2	4	.....	.....	.....
Alcona	3	33	6	.....	1	21	7	5	.....	10	1	1	30	30	.....	.....	90	80	75
Alger	4	17	5	.....	.....	14	5	3	2	7	.....	1	17	15	.....	.....	95	85	75
Allegan	6	378	8	5	32	161	.....	32	19	112	8	7	348	e 100	.....	.....	85	80	75
Alpena	4	86	8	.....	1	44	.....	10	2	38	42	.....	40	.....	.....	.....	90	80	70
Antrim	5	115	9	.....	13	82	9	16	2	40	1	10	127	75	.....	.....	90	85	80
Arenac	4	91	4	3	4	45	4	16	1	.....	.....	.....	62	30	.....	.....	91	93	86
Baraga	3	24	6	.....	.....	20	5	4	1	.....	.....	1	31	23	.....	.....	85	80	75
Barry	5	310	12	.....	35	189	10	86	5	92	.....	5	332	.....	.....	.....	90	85	80
Bay	4	176	6	3	10	74	5	23	6	.....	1	1	83	75	.....	.....	90	85	75
Benzie	5	116	6	.....	6	74	3	19	6	40	.....	5	96	40	.....	.....	95	85	75
Berrien	6	336	22	.....	7	179	15	22	12	130	.....	e 15	237	e 150	1	.....	95	90	80
Branch	5	307	28	1	16	127	16	33	29	75	.....	10	e 213	e 150	.....	.....	85	80	75
Calhoun	6	380	18	1	13	185	18	54	11	123	3	1	203	e 75	.....	.....	90	85	80
Cass	6	271	9	.....	17	160	9	40	23	41	1	9	207	e 100	.....	1	85	80	75
Charlevoix	6	135	5	.....	7	73	4	14	8	59	1	4	139	87	.....	.....	90	85	80
Cheboygan	5	86	22	.....	6	41	3	10	12	32	3	.....	70	40	.....	.....	90	85	80
Chippewa	2	82	21	1	6	22	11	9	2	40	1	10	65	e 30	.....	.....	85	75	75
Clare	4	74	4	.....	16	45	4	9	6	18	1	.....	61	36	.....	.....	85	80	75
Clinton	6	315	13	.....	16	201	13	50	.....	e 200	1	6	e 242	175	.....	.....	85	80	75
Crawford	3	38	5	1	10	22	5	5	3	30	.....	2	35	20	.....	.....	90	80	75
Delta	5	71	14	.....	8	40	9	8	3	19	.....	3	72	e 25	.....	1	85	80	75
Dickinson	3	40	e 6	.....	.....	19	2	13	.....	.....	.....	.....	21	.....	.....	.....	80	75	70
Eaton	6	270	6	3	15	182	3	47	e 10	e 150	.....	7	248	e 100	.....	.....	90	80	75
Emmet	5	114	12	.....	3	57	8	12	3	52	.....	9	79	e 55	.....	.....	90	85	75
Genesee	6	409	10	3	27	178	9	63	165	190	1	4	237	150	.....	.....	85	82	75

TABLE XII.—CONCLUDED.

Counties.	No. of public examinations.	Whole number of applicants for regular certificates.	No. of applicants for special certificates.	Number of applicants receiving certificates.				No. licensed without experience in teaching.	No. having received normal school instruction.	No. of teachers having attended institute during the year.	No. of teachers having State certificates.	No. of teachers holding normal school certificates.	No. of legally qualified teachers in the county.	No. making teaching a permanent occupation.	No. of certificates suspended.	No. of certificates revoked.	Average per cent required for certificates.		
				First grade.	Second grade.	Third grade.	Specials.										First grade.	Second grade.	Third grade.
Gladwin	5	49	5	------	6	27	1	3	8	14	------	------	36	e 18	------	------	90	85	75
Gogebic	2	14	2	------	------	10	2	------	2	12	------	------	13	4	------	------	85	80	70
Grand Traverse	5	120	6	------	18	80	6	9	5	58	------	18	140	e 60	------	------	90	85	75
Gratiot	6	329	10	3	14	195	8	48	6	111	4	4	236	156	------	------	85	85	75
Hillsdale	6	442	38	1	25	176	27	42	5	125	------	6	208	e 80	------	------	90	85	80
Houghton	4	217	20	------	29	78	19	31	13	46	3	27	170	100	------	------	90	85	70
Huron	3	250	10	2	21	102	6	27	10	90	1	9	153	e 75	------	------	85	80	75
Ingham	6	412	17	4	16	158	10	32	24	108	3	18	241	123	------	1	85	85	80
Ionia	6	409	9	8	48	249	9	83	73	213	2	11	309	173	------	------	85	80	75
Iosco	5	107	8	7	13	64	8	59	------	------	3	------	95	95	------	------	85	80	75
Iron	2	28	4	------	9	22	4	11	2	21	1	6	44	e 40	------	------	85	80	75
Isabella	4	303	e 50	------	13	87	16	18	43	e 85	------	9	145	e 80	------	------	95	85	80
Jackson	6	606	12	1	31	179	12	46	28	130	1	7	219	e 50	------	------	85	80	75
Kalamazoo	6	257	27	1	12	161	9	49	8	------	------	5	191	113	------	------	90	80	75
Kalkaska	4	76	11	1	3	56	6	12	------	e 50	------	1	67	e 40	------	------	90	80	75
Kent	6	592	22	4	27	298	17	60	e 40	e 150	3	8	401	e 195	------	------	90	85	85
Keweenaw	2	10	3	------	1	8	3	2	------	2	2	------	13	e 10	------	------	90	80	75
Lake	4	51	5	1	5	36	6	5	1	------	------	2	60	40	------	------	90	85	80
Lapeer	3	325	12	2	20	179	7	90	5	150	------	6	236	90	------	------	90	80	75
Leelanau	4	77	4	------	1	47	4	7	3	26	------	1	54	e 30	------	------	90	80	75
Lenawee	6	409	28	2	40	259	26	59	16	115	------	10	e 350	------	------	------	90	85	80
Livingston	6	400	8	1	16	220	4	35	30	150	2	12	295	100	------	------	90	85	80
Luce	6	32	------	------	1	24	------	15	2	22	------	1	20	13	------	------	90	80	70
Mackinac	4	43	16	1	3	28	12	4	5	3	------	4	36	e 26	------	------	85	80	75
Macomb	4	265	5	2	35	133	1	30	15	52	3	4	204	125	------	------	85	80	75
Manistee	5	128	16	------	8	66	12	14	5	37	1	------	71	30	------	------	85	75	75
Marquette	6	129	12	4	8	87	12	30	12	52	4	e 40	180	e 175	------	------	90	85	75
Mason	4	130	13	1	2	70	12	22	1	41	------	------	73	e 65	------	------	85	85	75
Mecosta	6	156	30	4	21	107	16	47	1	66	e 10	1	e 200	e 40	------	------	85	80	75
Menominee	4	78	26	------	2	44	26	11	16	40	1	------	72	50	------	------	90	80	70
Midland	6	150	18	3	5	72	14	18	2	87	1	1	95	87	------	------	90	85	80
Missaukee	4	68	3	------	3	39	3	7	------	24	------	1	55	e 45	------	------	90	85	75

Monroe	6	214	15	2	10	148	10	e 100	e 100	260	------	4	210	25	------	------	95	85	65
Montcalm	6	318	19	2	10	164	10	42	9	51	------	5	185	e 82	------	------	90	85	75
Montmorency	4	54	4	------	3	35	3	6	2	26	------	------	38	e 10	------	------	90	80	70
Muskegon	5	191	6	3	21	117	6	29	7	73	2	4	147	e 125	------	------	90	85	75
Newaygo	6	261	22	6	30	180	18	20	36	50	------	3	210	15	------	------	95	85	80
Oakland	6	426	10	2	28	300	8	100	100	150	------	20	e 350	e 175	------	------	90	85	80
Oceana	6	237	20	3	18	108	5	30	10	100	6	2	135	80	------	------	90	85	75
Ogemaw	4	49	5	------	3	38	5	7	2	33	------	------	45	e 40	------	------	90	80	70
Ontonagon	4	35	7	2	1	26	6	9	4	15	------	4	35	23	------	------	90	85	75
Osceola	6	167	4	2	33	60	3	27	6	67	1	12	149	e 100	------	------	85	80	80
Oscoda	4	17	13	------	3	8	13	4	------	9	------	------	19	------	------	------	------	------	------
Otsego	4	78	5	1	4	41	5	9	5	32	------	------	49	45	------	------	95	85	75
Ottawa	6	247	27	1	57	114	3	31	7	42	------	4	211	e 150	------	1	90	85	85
Presque Isle	6	36	18	------	------	18	17	5	3	12	------	1	33	5	------	------	90	75	60
Roscommon	4	15	4	------	1	8	4	5	------	------	------	1	9	3	------	------	85	80	75
Saginaw	6	363	27	8	21	216	17	e 40	e 75	175	1	2	e 245	e 150	------	------	93	87	80
St. Clair	4	368	50	5	13	141	26	22	12	99	3	------	163	e 100	------	------	85	80	75
St. Joseph	5	376	17	4	25	172	15	51	3	73	4	5	238	------	------	------	85	85	80
Sanilac	2	247	8	1	22	68	8	28	4	43	2	5	179	139	------	------	90	85	80
Schoolcraft	4	40	7	------	3	24	7	4	6	13	------	6	42	40	------	------	85	80	75
Shiawassee	6	362	25	2	22	155	25	50	7	e 97	2	2	101	e 75	------	------	85	80	75
Tuscola	4	366	14	1	37	203	14	27	11	124	------	3	325	e 200	------	------	90	85	80
Van Buren	5	422	35	2	28	186	15	51	11	70	5	12	260	e 150	------	------	85	80	75
Washtenaw	6	306	6	4	40	190	3	76	24	------	------	5	246	60	------	------	90	85	80
Wayne	6	368	45	------	19	158	40	30	35	76	3	23	226	e 50	1	------	85	75	75
Wexford	4	129	e 50	------	4	67	23	25	10	42	------	2	87	e 30	------	------	90	85	80

a Data taken from 1894 report as no reports for 1895 were received.

TABLE XIII.—CONCLUDED.

Counties.	No. of districts visited by the commissioner during the year.	No. of schools supplied with dictionaries.	No. of schools supplied with maps.	No. of schools supplied with globes.	No. of school houses properly ventilated and heated.	No. of schools having uniform text books in each branch.	No. of schools having a prescribed course of study.	No. of schools properly classified.	No. of schools in which physiology, etc., is taught.	No. of districts that have adopted text books in physiology.
Lenawee	150	e 170	e 95	e 80	.....	.....	197	.....	197	197
Livingston	155	100	25	40	12	90	155	110	80	80
Luce *a*	10	7	8	10	4	10	4	10	10	7
Mackinac	28	14	25	26	16	17	10	10	34	12
Macomb	113	100	88	70	100	102	104	112	113	65
Manistee	54	52	51	49	48	50	38	41	46	47
Marquette	42	42	42	42	e 35	.....	42	e 35	42	42
Mason	56	53	47	37	50	53	58	40	58	45
Mecosta	101	70	65	35	65	82	101	65	90	e 60
Menominee	46	37	41	33	.....	42	42	41	37	.....
Midland	63	48	55	44	e 50	e 55	1	e 60	e 60	e 60
Missaukee	47	45	40	41	.....	46	47	e 40	.....	47
Monroe	120	85	100	40	30	138	138	100	120	120
Montcalm	128	109	82	77	e 75	122	136	124	136	136
Montmorency	14	23	24	23	.....	24	.....	24	24	24
Muskegon	87	e 69	e 60	e 60	15	70	87	87	87	25
Newaygo	112	80	80	80	30	118	28	118	118	e 22
Oakland	100	125	75	20	15	215	200	200	200	200
Oceana	90	90	80	88	60	89	90	85	88	90
Ogemaw	42	30	28	31	.....	34	5	35	45	e 38
Ontonagon	13	15	13	10	.....	35	3	30	15	.....
Osceola	81	82	69	70	67	83	59	76	90	14
Oscoda	20	12	6	5	9	10	26	26	26	.....
Otsego	39	35	37	36	e 25	38	3	e 33	39	e 15
Ottawa	120	e 110	e 60	e 63	e 90	e 100	120	90	e 60	e 70
Presque Isle *a*	22	16	22	9	8	14	.....	7	22	.....
Roscommon	6	5	10	5	1	3	1	5	20	3
Saginaw	153	140	142	70	90	153	12	150	153	153
St Clair	140	95	70	64	22	132	147	139	150	.....
St. Joseph	123	90	64	35	5	.....	124	124	124	.....
Sanilac	139	74	67	46	100	104	20	20	131	131
Schoolcraft	19	16	27	8	24	26	41	36	41	e 22
Shiawassee	125	52	40	10	.....	110	125	e 115	e 115	e 115
Tuscola	144	129	90	90	42	140	14	140	144	e 140
Van Buren	152	125	e 75	e 50	e 100	e 125	e 140	152	152	152
Washtenaw	164	150	101	86	96	153	165	165	165	151
Wayne	40	100	69	80	20	150	100	20	80	e 154
Wexford	73	e 70	64	e 45	60	62	70	70	73	e 50

a Data taken from '94 reports.

TABLE XIV.

Miscellaneous statistics as reported by the county commissioners of schools for the year ending July 1, 1895.

Counties.	No. of meetings of county teachers' associations.	No. of township teachers' meetings.	No. of days devoted to meetings of county boards.	Amount allowed by board of supervisors for stationery, etc.	Amount of compensation received by members of the county board other than the commissioner.	Salary of the commissioner.	Amount of institute fees collected.
Totals	230	452	1,143	$7,349 93	$14,680 54	$69,245 00	$10,316 20
Alcona			3	$6 00	$40 00	$300 00	$21 50
Alger		1	13	15 20	100 00	300 00	8 50
Allegan	5	12	22		220 00	1,350 00	259 00
Alpena			20	150 00	200 00	550 00	40 00
Antrim	2		18		144 00	700 00	69 00
Arenac	4		10	25 40	80 00	300 00	61 50
Baraga	1	e 20	3	11 25	108 00	300 00	12 00
Barry	4	10	13	122 76	236 00	1,200 00	235 50
Bay	5	15	6	e 80 00	e 150 00	1,000 00	
Benzie	3		13	26 77	100 00	500 00	62 50
Berrien	2	10	15	134 77	252 00	1,200 00	215 50
Branch	3	12	16	181 40	320 00	1,200 00	179 00
Calhoun	3		28	115 20	224 00	1,200 00	254 00
Cass	1	2	12	119 98		1,000 00	157 00
Charlevoix	5	6	14	57 50	140 00	600 00	73 00
Cheboygan			22	20 00	178 00	500 00	62 00
Chippewa	1		30	200 00	200 00	460 00	25 50
Clare			2		64 00	450 00	58 00
Clinton	6		26	e 90 00	212 00	1,200 00	167 00
Crawford			6	12 00	48 00	400 00	33 50
Delta	2		12	50 00	80 00	500 00	31 50
Dickinson	1			e 15 00	e 40 00	300 00	58 00
Eaton	3	4	18	200 00	338 00	1,400 00	227 50
Emmet	2	15	8	e 20 00	60 00	600 00	51 00
Genesee	2	15	12	100 00	400 00	1,200 00	305 00
Gladwin			5	5 00	e 80 00	300 00	20 50
Gogebic		10	2	e 20 00	16 00	450 00	20 50
Grand Traverse	2	5	18	100 00	144 00	850 00	78 00
Gratiot	2	10	19	125 50	304 00	1,200 00	204 00
Hillsdale	3	20	6	200 00	400 00	1,200 00	269 00
Houghton	1		4	31 78	160 00	1,000 00	114 50
Huron	2	1	11	119 71	208 00	1,000 00	160 00
Ingham	3	4	36	184 64	324 00	1,350 00	230 00
Ionia	2	2	7	123 80		1,300 00	224 00
Iosco	9			9 00	66 00	300 00	28 50
Iron	1		4	58 00	34 00	300 00	28 50
Isabella	1	3	6	143 50	306 50	1,600 00	83 70
Jackson	3	13	44	185 70	352 00	1,200 00	276 00
Kalamazoo	5	4	14	143 57	179 00	1,350 00	178 50
Kalkaska	3		15	90 00	120 00	500 00	
Kent	22		48	149 50	776 00	1,500 00	441 00
Keweenaw			4	2 50	44 00	125 00	10 50
Lake	4	8	16	26 00	128 00	500 00	36 50
Lapeer	3	8	7	125 00	200 00	1,200 00	229 00
Leelanau	2		14	133 57	112 00	500 00	38 00

TABLE XIV.—CONCLUDED.

Counties.	No. of meetings of county teachers' associations.	No. of township teachers' meetings.	No. of days devoted to meetings of county board.	Amount allowed by board of supervisors for stationery, etc.	Amount of compensation received by members of the county board other than the commissioner.	Salary of the commissioner.	Amount of institute fees collected.
Lenawee	2	e 20	6	e $150 00	e $265 00	$1,200 00	$293 50
Livingston	2	5	10	200 00	250 00	1,200 00	234 00
Luce a			16		128 00	500 00	21 00
Mackinac			25	35 00	160 00	400 00	21 00
Macomb	1	4	4	e 160 00	400 00	1,100 00	106 00
Manistee	4		15	11 95	204 00	700 00	143 00
Marquette			15	58 90	116 00	1,500 00	126 00
Mason	2	2	13	200 00	168 00	500 00	88 50
Mecosta		10	6	167 00	248 00	1,000 00	135 00
Menominee	5		8	15 00	69 04	500 00	92 50
Midland	2	2	4	166 07	241 00	500 00	66 00
Missaukee	3		12	45 90	80 00	500 00	38 50
Monroe	9		10	100 00	240 00	1,200 00	147 00
Montcalm	2	19	12	142 00	150 00	1,200 00	184 50
Montmorency			12	4 50	96 00	300 00	23 50
Muskegon	3	17	5	e 70 00	136 50	1,400 00	123 50
Newaygo	1	2	32	152 25	356 00	1,100 00	128 00
Oakland	2	60	15	200 00	300 00	1,200 00	175 00
Oceana	20	20	4	160 00		850 00	97 50
Ogemaw			4		88 00	400 00	29 50
Ontonagon	3		10	50 94	76 00	300 00	27 50
Osceola	3	2	17	96 00	134 00	750 00	134 00
Oscoda			8	11 62	64 00	200 00	14 00
Otsego	1		20	e 30 00	e 163 00	350 00	42 00
Ottawa	9		34	38 80	136 00	1,000 00	197 50
Presque Isle a	8		7	20 00	e 48 00	360 00	24 00
Roscommon			4	10 00	38 00	250 00	13 50
Saginaw	3		10	200 00		1,400 00	296 50
St. Clair	2		7	200 00		1,500 00	229 00
St. Joseph	2	45	6	e 200 00	236 00	1,200 00	221 00
Sanilac	6		2		300 00	1,200 00	175 00
Schoolcraft			14	e 45 00	112 00	300 00	21 00
Shiawassee	2		7	e 125 00	165 00	1,200 00	
Tuscola	2		4	200 00	274 50	1,200 00	287 50
Van Buren	1	8	6	e 140 00	256 00	1,200 00	227 00
Washtenaw	3	20	40	109 00	320 00	1,500 00	227 00
Wayne	3	6	e 78	25 00	623 00	1,500 00	498 50
Wexford	1		19	e 80 00	152 00	750 00	70 00

a Data taken from 1894 report for the 1895 reports have not been received.

TABLE XIV.

Miscellaneous statistics as reported by the county commissioners of schools for the year ending July 1, 1895.

Counties.	No. of meetings of county teachers' associations.	No. of township teachers' meetings.	No. of days devoted to meetings of county boards.	Amount allowed by board of supervisors for stationery, etc.	Amount of compensation received by members of the county board other than the commissioner.	Salary of the commissioner.	Amount of institute fees collected.
Totals	230	452	1,143	$7,349 93	$14,680 54	$69,245 00	$10,316 20
Alcona			3	96 00	$40 00	$300 00	$21 50
Alger		1	13	15 20	100 00	300 00	8 50
Allegan	5	12	22		220 00	1,350 00	259 00
Alpena			20	150 00	200 00	550 00	40 00
Antrim	2		18		144 00	700 00	69 00
Arenac	4		10	25 40	80 00	300 00	61 50
Baraga	1	e 20	3	11 25	108 00	300 00	12 00
Barry	4	10	13	122 76	236 00	1,200 00	235 50
Bay	5	15	6	e 80 00	e 150 00	1,000 00	
Benzie	3		13	26 77	100 00	500 00	62 50
Berrien	2	10	15	134 77	252 00	1,200 00	215 50
Branch	3	12	16	181 40	320 00	1,200 00	179 00
Calhoun	3		28	115 20	224 00	1,200 00	254 00
Cass	1	2	12	119 98		1,000 00	157 00
Charlevoix	5	6	14	57 50	140 00	600 00	73 00
Cheboygan			22	20 00	178 00	500 00	62 00
Chippewa	1		30	200 00	200 00	460 00	25 50
Clare			2		64 00	450 00	58 00
Clinton	6		26	e 90 00	212 00	1,200 00	167 00
Crawford			6	12 00	48 00	400 00	33 50
Delta	2		12	50 00	80 00	500 00	31 50
Dickinson	1			e 15 00	e 40 00	300 00	58 00
Eaton	3	4	18	200 00	338 00	1,400 00	227 50
Emmet	2	15	8	e 20 00	60 00	600 00	51 00
Genesee	2	15	12	100 00	400 00	1,200 00	305 00
Gladwin			5	5 00	e 80 00	300 00	20 50
Gogebic		10	2	e 20 00	16 00	450 00	20 50
Grand Traverse	2	5	18	100 00	144 00	850 00	78 00
Gratiot	2	10	19	125 50	304 00	1,200 00	204 00
Hillsdale	3	20	6	200 00	400 00	1,200 00	269 00
Houghton	1		4	31 78	160 00	1,000 00	114 50
Huron	2	1	11	119 71	208 00	1,000 00	160 00
Ingham	3	4	36	184 64	324 00	1,350 00	230 00
Ionia	2	2	7	123 80		1,300 00	224 00
Iosco	9			9 00	66 00	300 00	28 50
Iron	1		4	58 00	34 00	300 00	28 50
Isabella	1	3	6	143 50	306 50	1,600 00	83 70
Jackson	3	13	44	185 70	352 00	1,200 00	276 00
Kalamazoo	5	4	14	143 57	179 00	1,350 00	178 50
Kalkaska	3		15	90 00	120 00	500 00	
Kent	22		48	149 50	776 00	1,500 00	441 00
Keweenaw			4	2 50	44 00	125 00	10 50
Lake	4	8	16	26 00	128 00	500 00	36 50
Lapeer	3	8	7	125 00	200 00	1,200 00	229 00
Leelanau	2		14	133 57	112 00	500 00	38 00

TABLE XIV.—CONCLUDED.

Counties.	No. of meetings of county teachers' associations.	No. of township teachers' meetings.	No. of days devoted to meetings of county board.	Amount allowed by board of supervisors for stationery, etc.	Amount of compensation received by members of the county board other than the commissioner.	Salary of the commissioner.	Amount of institute fees collected.
Lenawee	2	e 20	6	e $150 00	e $265 00	$1,200 00	$293 50
Livingston	2	5	10	200 00	250 00	1,200 00	234 00
Luce a			16		128 00	500 00	21 00
Mackinac			25	35 00	160 00	400 00	21 00
Macomb	1	4	4	e 160 00	400 00	1,100 00	106 00
Manistee	4		15	11 95	204 00	700 00	143 00
Marquette			15	58 90	116 00	1,500 00	126 00
Mason	2	2	13	200 00	168 00	500 00	88 50
Mecosta		10	6	167 00	248 00	1,000 00	135 00
Menominee	5		8	15 00	69 04	500 00	92 50
Midland	2	2	4	166 07	241 00	500 00	66 00
Missaukee	3		12	45 90	80 00	500 00	38 50
Monroe	9		10	100 00	240 00	1,200 00	147 00
Montcalm	2	19	12	142 00	150 00	1,200 00	184 50
Montmorency			12	4 50	96 00	300 00	23 50
Muskegon	3	17	5	e 70 00	136 50	1,400 00	123 50
Newaygo	1	2	32	152 25	356 00	1,100 00	128 00
Oakland	2	60	15	200 00	300 00	1,200 00	175 00
Oceana	20	20	4	160 00		850 00	97 50
Ogemaw			4		88 00	400 00	29 50
Ontonagon	3		10	50 94	76 00	300 00	27 50
Osceola	3	2	17	96 00	134 00	750 00	134 00
Oscoda			8	11 62	64 00	200 00	14 00
Otsego	1		20	e 30 00	e 163 00	350 00	42 00
Ottawa	9		34	38 80	136 00	1,000 00	197 50
Presque Isle a	8		7	20 00	e 48 00	360 00	24 00
Roscommon			4	10 00	38 00	250 00	13 50
Saginaw	3		10	200 00		1,400 00	296 50
St. Clair	2		7	200 00		1,500 00	229 00
St. Joseph	2	45	6	e 200 00	236 00	1,200 00	221 00
Sanilac	6		2		300 00	1,200 00	175 00
Schoolcraft			14	e 45 00	112 00	300 00	21 00
Shiawassee	2		7	e 125 00	165 00	1,200 00	
Tuscola	2		4	200 00	274 50	1,200 00	287 50
Van Buren	1	8	6	e 140 00	256 00	1,200 00	227 00
Washtenaw	3	20	40	109 00	320 00	1,500 00	227 00
Wayne	3	6	e 78	25 00	623 00	1,500 00	498 50
Wexford	1		19	e 80 00	152 00	750 00	70 00

a Data taken from 1894 report for the 1895 reports have not been received.

TABLE XV.

Showing the extent to which physiology was taught in the schools of the State during the year ending September 2, 1895, compiled from inspectors' reports.

Counties.	No. of districts in the county.	No. of districts reporting physiology taught.	No. of districts reporting physiology not taught.	No. of districts not reporting.
Totals	7,159	5,711	481	967
Alcona	25	23	2	3
Alger	7	6	-------	1
Allegan	184	154	6	24
Alpena	27	17	5	5
Antrim	71	60	4	7
Arenac	34	24	4	6
Baraga	5	4	-------	1
Barry	148	117	4	27
Bay	62	52	3	7
Benzie	48	44	1	3
Berrien	149	131	3	15
Branch	129	108	5	16
Calhoun	164	132	7	25
Cass	115	87	5	23
Charlevoix	73	57	8	8
Cheboygan	57	37	9	11
Chippewa	44	37	2	5
Clare	46	37	2	7
Clinton	129	124	2	3
Crawford	37	32	-------	5
Delta	30	22	4	4
Dickinson	8	8	-------	-------
Eaton	147	112	16	19
Emmet	60	40	8	12
Genesee	159	129	11	19
Gladwin	30	23	1	6
Gogebic	9	8	-------	1
Grand Traverse	68	64	-------	4
Gratiot	130	101	11	18
Hillsdale	166	139	11	16
Houghton	33	25	2	6
Huron	113	91	7	15
Ingham	136	102	14	20
Ionia	143	100	22	21
Iosco	27	20	2	5
Iron	8	7	-------	1
Isabella	100	79	9	12
Jackson	158	132	7	19
Kalamazoo	138	99	18	21
Kalkaska	51	50	-------	1
Kent	208	173	8	27
Keweenaw	6	6	-------	-------
Lake	47	34	1	12
Lapeer	136	100	12	24
Leelanau	57	52	-------	5
Lenawee	198	156	18	24
Livingston	134	99	11	24
Luce	4	4	-------	-------
Mackinac	25	13	6	6
Macomb	112	106	3	3
Manistee	56	48	2	6
Marquette	19	18	1	-------
Mason	59	49	-------	10
Mecosta	100	84	3	13
Menominee	34	29	1	4
Midland	69	48	11	10
Missaukee	50	38	2	10
Monroe	138	101	10	27
Montcalm	137	98	13	26
Montmorency	8	8	-------	-------
Muskegon	90	74	5	11
Newaygo	112	92	7	13
Oakland	209	141	31	37
Oceana	86	69	4	13
Ogemaw	45	32	4	9
Ontonagon	7	6	1	-------
Osceola	92	85	2	5
Oscoda	24	18	2	4
Otsego	40	32	1	7
Ottawa	122	101	6	15
Presque Isle	31	27	2	2
Roscommon	15	10	3	2
Saginaw	157	146	2	9
St. Clair	152	116	15	21
St. Joseph	124	88	17	19
Sanilac	145	122	7	16
Schoolcraft	18	15	3	-------
Shiawassee	127	94	9	24
Tuscola	145	126	6	13
Van Buren	153	116	10	27
Washtenaw	167	112	11	44
Wayne	155	124	13	18
Wexford	75	67	3	5

Bridgeh'pt'n T. 5 frl	Sanilac	99	600	270 00	30 00	.....	351 60	.....	62	175	1	.....	9	.....	270 00	.....	.....
Bridgeport	Saginaw	122	3,000	655 00	42 78	30 00	901 72	.....	80	178	1	1	9	9	385 00	270 00	
Brighton	Livingston	255	1,600	1,950 00	80 00	28 75	2,675 27	.....	184	200	1	4	10	40	800 00	1,150 00	
Britton	Lenawee	105	3,000	720 00	50 00	30 00	829 29	.....	108	180	1	1	9	9	450 00	270 00	
Bronson	Branch	278	4,000	1,845 00	38 33	45 00	2,376 80	.....	217	180	3	2	27	18	1,035 00	810 00	
Brooklyn	Jackson	208	5,000	1,850 00	60 00	31 25	2,465 66	.....	183	200	1	4	10	40	600 00	1,250 00	
Brown City	Sanilac	207	4,500	1,025 00	52 50	25 00	1,643 38	3,000 00	151	200	1	2	10	20	525 00	500 00	
Buchanan	Berrien	577	23,500	4,657 50	100 00	38 50	5,932 25	.....	540	190	1	10	10	95	1,000 00	3,657 50	
Buena Vista Tp. 5	Saginaw	122	1,000	400 00	.....	40 00	657 09	.....	81	200	.....	1	.....	10	.....	400 00	
Buena Vista Tp. 6	Saginaw	470	5,000	850 00	50 00	35 00	1,459 81	.....	134	200	1	1	10	10	500 00	350 00	
Burlington	Calhoun	116	1,300	585 00	40 00	25 00	760 19	.....	97	180	1	1	9	9	360 00	225 00	
Burnip's Corners	Allegan	125	2,000	825 00	61 11	30 56	941 18	.....	88	180	1	1	9	9	550 00	275 00	
Burnside	Lapeer	126	2,000	686 70	55 00	21 30	838 35	100 38	96	180	1	2	9	9	495 00	191 70	
Burr Oak	St Joseph	226	15,000	1,755 00	80 00	28 75	2,365 22	246 96	216	180	1	4	9	36	720 00	1,035 00	
Byron	Shiawassee	118	2,000	1,300 00	65 00	32 50	1,581 54	.....	98	194	1	2	10	20	650 00	650 00	
Byron Center	Kent	99	2,000	702 00	50 00	28 00	826 57	.....	80	175	2	1	9	9	450 00	252 00	
Cadillac	Wexford	1,565	57,500	14,665 00	150 00	45 40	22,092 96	20,000 00	1,227	200	1	29	10	290	1,500 00	13,165 00	
Caledonia	Kent	193	7,000	1,100 00	50 00	30 00	1,815 08	4,234 00	167	195	1	2	10	20	500 00	600 00	
Calumet	Houghton	5,320	7,000	30,390 15	123 33	56 79	42,260 40	.....	3,128	200	3	51	30	470	3,700 00	26,690 15	
Calumet Tp. 2	Houghton	322	2,500	2,450 00	50 00	48 75	4,260 23	.....	255	200	1	4	10	40	500 00	1,950 00	
Cambria	Hillsdale	85	2,000	700 00	50 00	27 44	822 20	.....	75	180	1	2	9	9	450 00	250 00	
Camden	Hillsdale	101	2,500	524 00	35 00	23 22	719 86	.....	98	180	1	2	9	9	315 00	209 00	
Campbell's Corners	Ogemaw	75	650	270 00	.....	30 00	347 47	.....	59	180	.....	1	.....	9	.....	270 00	
Cannonsburg	Kent	136	2,000	700 00	45 00	25 00	836 19	.....	108	200	1	1	10	10	450 00	250 00	
Capac	St. Clair	203	6,000	1,415 00	60 00	27 17	2,546 88	.....	196	196	1	4	10	30	600 00	815 00	
Carleton	Monroe	145	2,000	980 00	50 00	24 00	1,267 54	.....	130	200	1	2	10	20	500 00	480 00	
Caro	Tuscola	619	30,000	4,850 00	90 00	35 91	8,621 32	9,500 00	465	200	1	11	10	110	900 00	3,950 00	
Carrolton Tp. 1	Saginaw	465	10,000	1,973 75	72 38	25 00	2,587 07	.....	356	200	1	5	10	50	723 75	1,250 00	
Carrolton Tp. 2	Saginaw	269	2,400	800 00	50 00	30 00	1,051 71	.....	158	200	1	1	10	10	500 00	300 00	
Carson City	Montcalm	348	15,000	2,827 01	65 79	33 55	4,589 42	10,500 00	342	190	2	5	19	48	1,250 01	1,577 00	
Carsonville	Sanilac	214	2,500	950 00	55 00	20 00	1,199 41	111 48	163	200	1	2	10	20	550 00	400 00	
Caseville	Huron	237	4,000	1,250 00	65 00	30 00	1,542 13	.....	182	200	1	2	10	20	650 00	600 00	
Casnovia	Muskegon	122	3,000	1,080 00	60 00	30 00	1,296 43	.....	96	180	1	2	9	18	540 00	540 00	
Cass City	Tuscola	420	10,000	2,275 00	72 50	31 00	4,067 83	.....	309	200	1	6	10	50	725 00	1,550 00	
Cassopolis	Cass	414	21,000	3,989 62	100 00	38 41	5,406 19	.....	414	190	1	10	10	76	1,000 00	2,939 62	
Cedar Springs	Kent	346	20,000	3,004 00	80 00	38 67	3,798 28	.....	261	190	1	7	10	57	800 00	2,204 00	
Central Lake	Antrim	206	1,000	1,071 25	50 00	34 51	1,509 28	6,000 00	154	180	1	2	9	18	450 00	621 25	
Central Mine	Keweenaw	111	7,000	1,200 00	85 00	49 29	1,721 15	.....	82	180	1	2	6	14	510 00	690 00	
Centreville	St. Joseph	220	20,000	2,159 00	80 00	33 88	3,511 36	800 00	159	190	1	6	10	41	800 00	1,359 00	
Ceresco	Calhoun	62	800	301 00	33 44	.....	371 40	.....	43	180	1	.....	9	.....	301 00	.....	
Charlevoix	Charlevoix	536	17,750	3,775 10	100 00	29 04	6,710 38	13,000 00	476	178	1	11	9	99	900 00	2,875 10	
Charlotte	Eaton	1,055	40,000	11,453 97	78 33	43 35	15,092 79	.....	1,001	192	3	21	30	210	2,350 00	9,103 97	
Chase	Lake	174	1,500	850 00	50 00	35 00	1,099 41	.....	141	200	1	1	10	10	500 00	350 00	
Chassell	Houghton	175	4,500	1,510 00	58 57	43 13	3,466 08	1,600 00	102	200	2	2	14	16	820 00	690 00	
Cheboygan	Cheboygan	2,437	50,000	9,604 50	64 61	41 29	41,041 54	37,000 00	1,186	197	4	17	40	170	2,584 50	7,020 00	
Chelsea	Washtenaw	443	14,000	4,290 00	58 50	33 19	9,769 04	.....	313	200	2	10	20	94	1,170 00	3,120 00	
Chesaning	Saginaw	336	10,000	3,120 00	40 33	31 83	5,380 40	.....	345	196	3	6	30	60	1,210 00	1,910 00	

TABLE XVI.—CONTINUED.

Districts.	Counties.	No. of children between 5 and 20 years.	Estimated valuation of school property.	Amount paid for superintendence and instruction.	Average monthly wages of teachers.		Total cost of school.	Total indebtedness.	No. of children that attended school during the year.	No. of days' school.	No. of teachers employed.		Aggregate No. of mos. taught by all teachers.		Total wages of teachers for the year.	
					Men.	Women.					Men.	Women.	Men.	Women.	Men.	Women.
Bangor	Van Buren	338	$6,000	$2,462 50	$59 61	$35 00	$3,689 25		383	185	2	4	19	38	$1,132 50	$1,330 00
Bannister	Gratiot	85	2,000	504 00		31 50	622 97		75	160		2		16		504 00
Baraga	Baraga	828	10,000	3,270 00	100 00	37 83	5,032 84	$2,000 00	381	195	1	7	10	60	1,000 00	2,270 00
Baroda	Berrien	147	3,000	540 00	50 00	30 00	2,963 43	2,700 00	103	160	1	1	6	8	300 00	240 00
Bath	Clinton	94	2,000	1,047 25	45 68	25 00	1,250 43		100	180	3	1	18	9	822 25	225 00
Battle Creek	Calhoun	3,763	225,000	29,940 62	118 33	42 22	45,548 20	34,198 88	2,829	200	3	63	30	625	3,550 00	26,390 62
Bay City	Bay	11,482	226,000	49,575 18	121 44	42 33	80,162 34	13,163 46	4,573	194	7	97	70	970	8,515 50	41,059 68
Bay Mills	Chippewa	341	275	1,125 00	60 00	32 50	1,383 97		130	180	2	2	9	18	540 00	585 00
Beacon	Marquette	551	12,000	6,220 43	162 00	46 00	8,551 89		430	200	1	10	10	100	1,620 00	4,600 43
Bear Lake	Manistee	170	2,500	869 00	55 00	33 00	1,045 99		138	160	1	3	8	13	440 00	429 00
Bedford	Calhoun	74	1,200	500 00	33 33	22 22	610 09		72	176	1	1	9	9	300 00	200 00
Belding	Ionia	815	13,000	5,330 00	100 00	33 31	8,910 88	2,000 00	631	200	1	13	10	130	1,000 00	4,330 00
Bellaire	Antrim	294	7,000	1,980 00	75 00	36 25	2,891 81	3,500 00	250	180	1	4	9	36	675 00	1,305 00
Bellevue	Eaton	254	5,000	1,630 00	61 11	30 00	2,285 30	111 31	194	180	1	4	9	36	550 00	1,080 00
Belleville	Wayne	176	10,000	1,195 00	54 67	25 00	1,634 88		115	200	2	2	15	15	820 00	375 00
Benton Harbor	Berrien	1,444	62,000	11,694 96	94 72	39 64	27,508 29	20,000 00	1,479	180	2	28	18	252	1,704 96	9,990 00
Benton Tp. 5 frl.	Berrien	200	3,000	940 00	50 00	30 00	1,206 07	1,075 00	130	175	1	2	8	18	400 00	540 00
Benzonia	Benzie	162	5,000	1,125 00	55 00	35 00	1,770 02	3,600 00	111	180	1	2	9	18	495 00	630 00
Berlamont	Van Buren	103	2,000	546 25	41 00	28 44	729 17	300 00	71	170	1	3	5	12	205 00	341 25
Berlin	Ottawa	99	1,400	730 50	53 11	28 00	931 16		79	180	1	1	9	9	478 50	252 00
Berrien Springs	Berrien	185	9,000	2,105 00	88 89	36 25	2,684 32		183	180	1	4	9	36	800 00	1,305 00
Bessemer	Gogebic	618	27,000	5,608 75	120 00	46 41	14,091 18	19,500 00	608	190	1	10	10	95	1,200 00	4,408 75
Big Rapids	Mecosta	1,680	40,000	11,363 12	150 00	41 10	14,397 91		1,201	195	1	24	10	240	1,500 00	9,863 12
Birmingham	Oakland	349	12,000	3,250 00	100 00	37 50	4,025 76		309	200	1	6	10	60	1,000 00	2,250 00
Black River	Alcona	238	300	963 00	38 50	30 00	1,489 11		171	180	2	1	18	9	693 00	270 00
Blanchard	Isabella	100	1,200	560 00	40 00	30 00	757 64	200 00	86	160	1	1	8	8	320 00	240 00
Blissfield Tp. 1 frl.	Lenawee	186	5,000	1,610 00	70 00	30 30	2,362 12		194	200	1	3	10	30	700 00	910 00
Blissfield Tp. 2 frl.	Lenawee	222	4,500	1,675 00	72 50	31 67	2,276 69	300 00	178	194	1	3	10	30	725 00	950 00
Bloomingdale	Van Buren	131	6,500	1,310 00	55 56	30 00	1,726 02	2,100 00	131	180	1	3	9	27	500 00	810 00
Boyne	Charlevoix	222	3,000	1,170 00	60 00	35 00	1,577 17		196	180	1	2	9	18	540 00	630 00
Boyne Falls	Charlevoix	168	900	978 75	55 00	30 23	1,238 98	144 25	120	180	1	2	9	16	495 00	483 75
Breckenridge	Gratiot	141	1,000	585 00		32 50	642 44		119	176		2		18		585 00
Breedsville	Van Buren	114	1,000	612 00	40 00	28 00	692 45		90	177	1	1	9	9	360 00	252 00
Bridgeh'pton Tp. 1	Sanilac	111	450	300 00	33 33		464 45		86	174	1		9		300 00	
Bridgeh'pton Tp. 2	Sanilac	133	700	405 00	45 00		484 13		44	178	1		9		405 00	

Bridgeh'pt'n T. 5 frl	Sanilac	99	600	270 00	30 00	.....	351 60	.....	62	175	1	.....	9	.....	270 00	.....
Bridgeport	Saginaw	122	3,000	655 00	42 78	30 00	901 72	.....	80	178	1	1	9	9	385 00	270 00
Brighton	Livingston	255	1,600	1,950 00	80 00	28 75	2,675 27	.....	184	200	1	4	10	40	800 00	1,150 00
Britton	Lenawee	105	3,000	720 00	50 00	30 00	829 29	.....	108	180	1	1	9	9	450 00	270 00
Bronson	Branch	278	4,000	1,845 00	88 33	45 00	2,376 80	.....	217	180	3	2	27	18	1,035 00	810 00
Brooklyn	Jackson	208	5,000	1,850 00	60 00	31 25	2,465 66	.....	183	200	1	4	10	40	600 00	1,250 00
Brown City	Sanilac	207	4,500	1,025 00	52 50	25 00	1,643 38	3,000 00	151	200	1	2	10	20	525 00	500 00
Buchanan	Berrien	577	23,500	4,657 50	100 00	38 50	5,932 25	.....	540	190	1	10	10	95	1,000 00	3,657 50
Buena Vista Tp. 5	Saginaw	122	1,000	400 00	.....	40 00	657 09	.....	81	200	.....	1	.....	10	.....	400 00
Buena Vista Tp. 6	Saginaw	470	5,000	850 00	50 00	35 00	1,459 81	.....	134	200	1	1	10	10	500 00	350 00
Burlington	Calhoun	116	1,300	585 00	40 00	25 00	760 19	.....	97	180	1	1	9	9	360 00	225 00
Burnip's Corners	Allegan	125	2,000	825 00	61 11	30 56	941 18	.....	88	180	1	1	9	9	550 00	275 00
Burnside	Lapeer	126	2,000	686 70	55 00	21 30	838 35	100 38	96	180	1	2	9	9	495 00	191 70
Burr Oak	St Joseph	226	15,000	1,755 00	80 00	28 75	2,365 22	246 96	216	180	1	4	9	36	720 00	1,035 00
Byron	Shiawassee	118	2,000	1,300 00	65 00	32 50	1,581 54	.....	98	194	1	2	10	20	650 00	650 00
Byron Center	Kent	99	2,000	702 00	50 00	28 00	826 57	.....	80	175	2	1	9	9	450 00	252 00
Cadillac	Wexford	1,565	57,500	14,665 00	150 00	45 40	22,092 96	20,000 00	1,227	200	1	29	10	290	1,500 00	13,165 00
Caledonia	Kent	193	7,000	1,100 00	50 00	30 00	1,815 08	4,234 00	167	195	1	2	10	20	500 00	600 00
Calumet	Houghton	5,320	7,000	30,390 15	123 33	56 79	42,260 40	.....	3,128	200	3	51	30	470	3,700 00	26,690 15
Calumet Tp. 2	Houghton	322	2,500	2,450 00	50 00	48 75	4,260 23	.....	255	200	1	4	10	40	500 00	1,950 00
Cambria	Hillsdale	85	2,000	700 00	50 00	27 44	822 20	.....	75	180	1	2	9	9	450 00	250 00
Camden	Hillsdale	101	2,500	524 00	35 00	23 22	719 86	.....	98	180	1	2	9	9	315 00	209 00
Campbell's Corners	Ogemaw	75	650	270 00	.....	30 00	347 47	.....	59	180	.....	1	.....	9	.....	270 00
Cannonsburg	Kent	136	2,000	700 00	45 00	25 00	836 19	.....	108	200	1	1	10	10	450 00	250 00
Capac	St. Clair	203	6,000	1,415 00	60 00	27 17	2,546 88	.....	196	196	1	4	10	30	600 00	815 00
Carleton	Monroe	145	2,000	980 00	50 00	24 00	1,267 54	.....	130	200	1	2	10	20	500 00	480 00
Caro	Tuscola	619	30,000	4,850 00	90 00	35 91	8,621 32	9,500 00	465	200	1	11	10	110	900 00	3,950 00
Carrolton Tp. 1	Saginaw	465	10,000	1,973 75	72 38	25 00	2,587 07	.....	356	200	1	5	10	50	723 75	1,250 00
Carrolton Tp. 2	Saginaw	269	2,400	800 00	50 00	30 00	1,051 71	.....	158	200	1	1	10	10	500 00	300 00
Carson City	Montcalm	348	15,000	2,827 01	65 79	33 55	4,589 42	10,500 00	342	190	2	5	19	48	1,250 01	1,577 00
Carsonville	Sanilac	214	2,500	950 00	55 00	20 00	1,199 41	111 48	163	200	1	2	10	20	550 00	400 00
Caseville	Huron	237	4,000	1,250 00	65 00	30 00	1,542 13	.....	182	200	1	2	10	20	650 00	600 00
Casnovia	Muskegon	122	3,000	1,080 00	60 00	30 00	1,296 43	.....	96	180	1	2	9	18	540 00	540 00
Cass City	Tuscola	420	10,000	2,275 00	72 50	31 00	4,067 83	.....	309	200	1	6	10	50	725 00	1,550 00
Cassopolis	Cass	414	21,000	3,939 62	100 00	38 41	5,406 19	.....	414	190	1	10	10	76	1,000 00	2,939 62
Cedar Springs	Kent	346	20,000	3,004 00	80 00	38 67	3,798 28	.....	261	190	1	7	10	57	800 00	2,204 00
Central Lake	Antrim	206	1,000	1,071 25	50 00	34 51	1,509 28	6,000 00	154	180	1	2	9	18	450 00	621 25
Central Mine	Keweenaw	111	7,000	1,200 00	85 00	49 29	1,721 15	.....	82	180	1	2	6	14	510 00	690 00
Centreville	St. Joseph	220	20,000	2,159 00	80 00	33 88	3,511 36	800 00	159	190	1	6	10	41	800 00	1,359 00
Ceresco	Calhoun	62	800	301 00	33 44	.....	371 40	.....	43	180	1	.....	9	.....	301 00	.....
Charlevoix	Charlevoix	536	17,750	3,775 10	100 00	29 04	6,710 38	13,000 00	476	178	1	11	9	99	900 00	2,875 10
Charlotte	Eaton	1,055	40,000	11,453 97	78 33	43 35	15,092 79	.....	1,001	192	3	21	30	210	2,350 00	9,103 97
Chase	Lake	174	1,500	850 00	50 00	35 00	1,099 41	.....	141	200	1	1	10	10	500 00	350 00
Chassell	Houghton	175	4,500	1,510 00	58 57	43 13	3,466 08	1,600 00	102	200	2	2	14	16	820 00	690 00
Cheboygan	Cheboygan	2,437	50,000	9,604 50	64 61	41 29	41,041 54	37,000 00	1,186	197	4	17	40	170	2,584 50	7,020 00
Chelsea	Washtenaw	443	14,000	4,290 00	58 50	33 19	9,769 04	.....	313	200	2	10	20	94	1,170 00	3,120 00
Chesaning	Saginaw	336	10,000	3,120 00	40 33	31 83	5,380 40	.....	345	198	3	6	30	60	1,210 00	1,910 00

TABLE XVI.—CONTINUED.

Districts.	Counties.	No. of children between 5 and 20 years.	Estimated valuation of school property.	Amount paid for superintendence and instruction.	Average monthly wages of teachers.		Total cost of school.	Total indebtedness.	No of children that attended school during the year.	No. of days' school.	No. of teachers employed.		Aggregate No. of mos. taught by all teachers.		Total wages of teachers for the year.	
					Men.	Women.					Men.	Women.	Men.	Women.	Men.	Women.
Chippewa Tp. 6	Mecosta	83	$2,000	$698 00	$40 00	$29 80	$744 10	.....	85	196	1	2	10	10	$400 00	$298 00
Chickaming Tp. 3	Berrien	140	500	310 00	38 75	.....	434 25	.....	71	160	1	.....	8	.....	310 00	.....
Clare	Clare	568	20,000	3,029 00	85 00	31 58	5,056 51	$14,000 00	454	200	1	7	10	69	850 00	2,179 00
Clarkston	Oakland	167	4,000	1,330 00	75 00	29 00	1,600 63	.....	132	192	1	2	10	20	750 00	580 00
Clarksville	Ionia	113	4,000	814 50	55 56	34 94	1,007 08	1,484 70	87	180	1	1	9	9	500 00	314 50
Clay Tp. 3	St. Clair	95	1,400	320 00	40 00	.....	363 80	.....	66	160	1	.....	8	.....	320 00	.....
Clayton	Lenawee	112	3,000	770 00	55 56	30 00	1,122 28	.....	101	180	1	1	9	9	500 00	270 00
Clifford	Lapeer	146	3,500	630 31	39 50	26 15	985 86	3,000 00	114	200	1	1	10	9	395 00	235 31
Climax	Kalamazoo	149	4,000	1,117 50	50 00	25 67	1,576 12	.....	133	180	1	3	9	26	450 00	667 50
Clinton	Lenawee	310	7,000	1,908 64	78 76	29 50	2,736 80	.....	253	186	2	4	10	38	787 64	1,121 00
Clio	Genesee	209	6,000	1,430 00	55 00	29 33	2,105 93	5,000 00	215	198	1	3	10	30	550 00	880 00
Coldwater	Branch	1,334	87,000	13,359 00	110 71	39 52	19,752 28	22,500 00	1,135	200	4	24	35	240	3,875 00	9,484 00
Coleman	Midland	479	14,000	1,537 50	46 89	30 59	11,003 97	9,000 00	332	150	1	5	8	37	375 00	1,162 50
Coloma	Berrien	195	6,000	1,260 00	42 50	27 50	2,168 41	4,000 00	175	180	2	2	18	18	765 00	495 00
Colon	St. Joseph	149	3,000	1,404 00	60 00	32 00	1,640 38	.....	113	180	1	3	9	27	540 00	864 00
Columbiaville	Lapeer	175	.....	1,250 00	50 00	25 00	1,909 07	.....	120	192	1	3	10	30	500 00	750 00
Comstock	Kalamazoo	115	1,750	585 00	40 00	25 00	732 57	13 16	75	180	1	1	9	9	360 00	225 00
Commerce	Oakland	59	600	300 00	.....	33 33	327 91	.....	49	177	.....	1	.....	9	.....	300 00
Concord	Jackson	140	8,000	2,230 00	90 00	35 00	2,704 69	.....	107	190	1	4	10	38	900 00	1,330 00
Conklin	Ottawa	111	1,200	315 00	35 00	.....	365 38	.....	85	180	1	.....	9	.....	315 00	.....
Constantine	St. Joseph	256	25,000	3,361 25	90 00	30 77	7,838 10	800 00	265	200	1	8	10	80	900 00	2,461 25
Coopersville	Ottawa	233	5,000	1,710 00	57 00	30 00	2,127 44	.....	197	190	1	4	10	38	570 00	1,140 00
Copemish	Manistee	140	1,500	800 00	50 00	30 00	1,041 13	600 00	115	200	1	1	10	10	500 00	300 00
Coral	Montcalm	167	3,000	675 00	45 00	30 00	849 10	.....	165	180	1	1	9	9	405 00	270 00
Corunna	Shiawassee	423	28,000	4,098 50	94 17	33 35	5,559 47	.....	275	200	2	8	11	89	1,130 00	2,968 50
Covert	Van Buren	163	2,000	855 00	45 00	25 00	1,056 08	.....	156	180	1	2	9	18	405 00	450 00
Croswell	Sanilac	322	8,000	2,090 00	80 00	32 25	2,715 98	4,035 64	316	200	1	4	10	40	800 00	1,290 00
Crystal	Montcalm	94	4,000	585 00	40 00	25 00	675 29	.....	74	180	1	1	9	9	360 00	225 00
Crystal Falls	Iron	505	18,000	6,550 00	130 00	52 50	9,909 51	12,000 00	440	200	1	10	10	100	1,300 00	5,250 00
Custer	Mason	169	2,000	688 50	46 33	30 17	853 76	.....	117	180	1	3	9	9	417 00	271 50
Dansville	Ingham	128	4,000	1,398 00	60 00	27 52	2,020 00	.....	120	186	1	3	9	29	600 00	798 00
Davison	Genesee	231	10,000	1,400 00	50 00	30 00	1,969 35	5,000 00	245	198	1	3	10	30	500 00	900 00
Dearborn	Wayne	349	20,000	1,550 00	65 00	30 00	3,860 01	10,744 11	197	200	1	5	10	30	650 00	900 00
Deckerville	Sanilac	246	3,000	850 00	50 00	25 00	1,120 50	.....	190	180	1	2	8	18	400 00	450 00
Decatur	Van Buren	394	15,000	3,180 00	100 00	36 33	4,263 81	.....	344	200	1	6	10	60	1,000 00	2,180 00

Graafschap	Allegan	163	1,200	494 00	40 00	25 40	571 79		123	160	1	2	6	10	240 00	254 00
Grand Blanc	Genesee	104	2,500	630 00	45 00	25 00	1,068 74	800 00	80	180	2	1	9	9	405 00	225 00
Grand Haven	Ottawa	1,843	50,000	12,680 92	80 00	35 11	25,344 78		1,234	196	4	27	40	270	3,200 00	9,480 92
Grand Junction	Van Buren	146	3,500	586 00	40 00	24 18	1,147 32	310 00	106	160	1	2	8	11	320 00	266 00
Grand Marias	Alger	166	1,500	812 50	55 00	35 00	1,306 43	400 00	108	196	1	1	10	8	550 00	262 50
Grand Ledge Tp. 9	Eaton	292	12,000	2,760 00	90 00	37 20	3,518 92	1,000 00	317	200	1	7	10	50	900 00	1,860 00
G'd Ledge Tp. 11 frl	Eaton	286	8,000	1,700 00	65 00	35 00	2,428 56		261	200	1	3	10	30	650 00	1,050 00
Grand Rapids	Kent	25,990	1,172,723	180,378 35	108 95	51 14	261,277 80	351,900 00	14,201	191	18	314	180	3,140	19,612 13	160,766 22
Grandville	Kent	234	10,000	1,850 00	62 14	32 67	2,365 57	424 25	169	188	2	3	14	30	870 00	980 00
Grass Lake	Jackson	179	12,000	1,950 00	70 00	31 25	2,607 08	350 00	213	200	1	4	10	40	700 00	1,250 00
Grattan	Kent	105	2,000	765 00	50 00	35 00	981 33		87	180	1	1	9	9	450 00	315 00
Grayling	Crawford	373	12,000	3,815 00	100 00	35 63	5,784 41		384	200	1	8	10	79	1,000 00	2,815 00
Greenville	Montcalm	899	42,000	8,007 50	140 00	36 71	10,717 37		790	200	1	18	10	180	1,400 00	6,607 50
Grindstone City	Huron	292	3,000	1,350 00	70 00	32 50	1,647 68		214	200	1	2	10	20	700 00	650 00
Grosse Isle	Wayne	321	4,750	1,293 00		43 17	1,936 24		136	190		3		30		1,295 00
Hadley	Lapeer	88	2,900	886 25	51 50	21 84	992 64		66	190	1	2	10	16	515 00	371 25
Hamilton	Allegan	105	1,500	540 00	40 00	20 00	631 47	75 00	86	180	1	1	9	9	360 00	180 00
Hamtramck Tp. 4	Wayne	111	2,550	300 00		30 00	493 30		43	200		2		10		300 00
Hamtramck Tp. 8	Wayne	253	2,000	700 00		35 00	1,262 04		115	200		2		20		700 00
Hancock	Houghton	1,338	48,000	8,524 00	135 00	45 86	16,515 20	24,000 00	994	200	2	15	20	127	2,700 00	5,824 00
Hanover	Jackson	143	8,000	1,520 00	60 00	30 67	1,869 44		124	190	1	3	10	30	600 00	920 00
Harbor Springs	Emmet	385	4,500	2,045 61	63 33	38 96	2,455 77	1,700 00	249	180	2	4	12	33	760 00	1,285 61
Harrietta	Wexford	123	1,500	675 00	40 00	35 00	921 70	1,000 00	74	174	1	1	9	9	360 00	315 00
Harrison	Clare	229	3,500	1,597 50	60 00	34 40	1,852 57		211	190	1	3	9	29	600 00	997 50
Harrisville	Alcona	250	2,000	1,439 60	70 00	32 41	1,836 50	400 00	220	180	1	3	9	27	630 00	875 00
Hart	Oceana	355	15,000	2,420 00	65 25	32 03	4,568 84	5,600 00	294	180	2	6	15	45	978 75	1,441 25
Hartford	Van Buren	363	4,000	2,389 00	85 00	36 09	3,040 77		313	180	1	5	9	45	765 00	1,624 00
Hartland	Livingston	78	1,500	600 00	35 00	25 00	730 93		67	200	1	1	10	10	350 00	250 00
Hastings	Barry	842	50,000	7,290 00	120 00	35 24	10,232 56	5,000 00	854	200	1	17	10	170	1,200 00	6,090 00
Hermanville	Menominee	374	1,200	1,398 50	45 00	31 62	1,695 73		206	200	1	3	10	30	450 00	948 50
Hersey	Osceola	122	3,500	1,200 00	60 00	30 00	1,562 11		101	198	1	2	10	20	600 00	600 00
Hesperia	Newaygo	248	3,000	1,673 50	61 11	31 21	2,100 66		261	174	1	6	9	36	550 00	1,123 50
Highland Park	Wayne	141	12,000	1,550 00	75 00	40 00	2,722 87	6,000 00	110	200	1	2	10	20	750 00	800 00
Highland Station	Oakland	109	1,500	700 00	40 00	30 00	824 43		100	200	1	1	10	10	400 00	300 00
Hillman	Montmorency	233	5,500	1,520 00	40 36	30 00	2,218 02	280 35	195	155	3	2	28	13	1,130 00	390 00
Hillsdale	Hillsdale	1,159	44,000	8,512 35	81 03	36 04	15,520 26	5,000 00	916	190	3	18	29	171	2,350 00	6,162 35
Holland Tp. 4	Ottawa	112	1,500	300 00		30 00	429 80		66	200		1		10		300 00
Holland	Ottawa	2,303	55,000	10,902 00	115 00	31 86	16,497 19	20,200 00	1,580	200	2	27	20	270	2,300 00	8,602 00
Holland Tp. 3	Ottawa	125	1,800	524 00	38 00	16 00	629 24		103	200	1	1	10	9	380 00	144 00
Holland Tp. 9	Ottawa	136	2,000	560 00	40 00	16 00	711 33	650 00	88	200	1	1	10	10	400 00	160 00
Holland Tp. 6 frl	Ottawa	154	1,200	450 00	45 00		601 62	425 00	105	200	1		10		450 00	
Home Tp. 2	Newaygo	127	300	466 24	40 00	21 25	499 35		105	180	1	1	9	5	360 00	106 24
Holly	Oakland	365	15,000	3,450 00	100 00	35 00	4,249 71		361	200	1	7	10	70	1,000 00	2,450 00
Holt	Ingham	135	1,800	900 00	50 00	25 00	1,056 76		100	180	1	2	9	18	450 00	450 00
Holton	Muskegon	113	1,800	515 00		28 61	596 30	400 00	93	180		4		18		515 00
Homer	Calhoun	325	15,000	2,620 00	32 50	35 71	4,008 02	9,000 00	311	190	1	8	7	67	227 50	2,392 50
Hopkins Station	Allegan	123	1,200	903 00	50 00	25 17	1,120 49		100	180	1	3	9	18	450 00	453 00

TABLE XVI.—Continued.

Districts.	Counties.	No. of children between 5 and 20 years.	Estimated valuation of school property.	Amount paid for superintendence and instruction.	Average monthly wages of teachers.		Total cost of school.	Total indebtedness.	No. of children that attended school during the year.	No. of days' school.	No. of teachers employed.		Aggregate No. of mos. taught by all teachers.		Total wages of teachers for the year.	
					Men.	Women.					Men.	Women.	Men.	Women.	Men.	Women.
Fillmore Tp. 3	Allegan	126	$800	$414 00	.....	$25 58	$578 64	$29 37	90	180	.....	2	.....	16	.....	$414 00
Fillmore Tp. 4	Allegan	152	1,200	427 00	.....	26 69	543 04	.....	105	180	.....	2	.....	16	.....	427 00
Fillmore Tp. 5 frl	Allegan	118	1,000	310 50	.....	34 50	376 45	.....	76	180	.....	1	.....	9	.....	310 50
Flat Rock	Wayne	248	12,000	1,547 91	$73 59	27 07	2,001 76	.....	171	200	1	3	10	30	$735 91	872 00
Flint	Genesee	2,719	150,000	30,808 90	130 83	54 42	44,159 77	25,080 00	1,930	195	4	47	40	470	5,233 25	25,575 65
Flushing	Genesee	247	9,000	2,325 00	90 00	35 63	2,885 06	1,750 00	188	198	1	4	10	40	900 00	1,425 00
Ford River	Delta	234	3,000	1,000 00	50 00	50 00	1,337 15	.....	140	190	1	1	10	10	500 00	500 00
Forestville	Sanilac	172	1,000	550 00	50 00	25 00	841 28	48 85	91	180	1	1	9	4	450 00	100 00
Forest Grove	Ottawa	120	1,500	485 00	45 00	20 00	1,210 91	506 88	88	168	1	1	9	4	405 00	80 00
Fostoria	Tuscola	146	3,600	750 00	45 00	15 00	883 70	.....	106	200	1	2	10	20	450 00	300 00
Fowler	Clinton	112	1,800	720 00	50 00	30 00	849 77	.....	43	180	1	1	9	9	450 00	270 00
Fowlerville	Livingston	357	10,000	2,659 60	75 00	32 33	3,732 13	3,000 00	238	200	1	10	10	60	750 00	1,939 60
Frankenmuth	Saginaw	357	180	1,075 00	67 19	.....	1,196 76	.....	176	160	2	.....	16	.....	1,075 00	.....
Frankfort	Benzie	569	33,000	4,480 00	66 00	38 07	7,904 65	26,599 00	420	200	2	9	20	83	1,320 00	3,160 00
Franklin Tp. 1	Houghton	254	3,000	1,650 00	75 00	45 00	3,099 79	.....	179	198	1	2	10	20	750 00	900 00
Franklin Tp. 2	Houghton	283	4,000	1,700 00	80 00	45 00	2,477 68	.....	133	200	1	2	10	20	800 00	900 00
Franklin Tp. 5	Houghton	382	3,000	1,930 00	85 00	36 67	3,429 75	205 77	210	195	1	3	10	30	850 00	1,100 00
Freeland	Saginaw	126	2,000	750 00	45 00	30 00	837 20	.....	104	200	1	1	10	10	450 00	300 00
Freeport	Barry	161	1,100	612 00	40 00	28 00	728 39	.....	142	180	1	1	9	9	360 00	252 00
Freesoil	Mason	168	1,500	585 00	32 50	.....	742 24	.....	116	180	2	.....	18	.....	585 00	.....
Frontier	Hillsdale	105	3,500	855 00	37 50	20 00	2,068 23	2,500 00	83	180	2	1	18	9	675 00	180 00
Fremont	Newaygo	391	10,000	2,900 00	80 00	35 00	3,798 76	.....	350	200	1	6	10	60	800 00	2,100 00
Fruitport	Muskegon	117	2,500	690 00	50 00	26 67	827 95	.....	85	180	1	1	9	9	450 00	240 00
Fulton	Kalamazoo	95	1,500	621 30	33 33	18 90	694 97	.....	82	180	2	3	9	17	300 00	321 30
Gaines	Genesee	117	5,000	1,446 50	70 00	25 74	1,866 85	.....	104	200	1	3	10	29	700 00	746 50
Galesburg	Kalamazoo	176	10,000	2,134 00	70 56	32 00	2,742 59	.....	134	180	2	3	18	27	1,270 00	864 00
Galien	Berrien	202	4,000	1,455 00	66 67	31 67	1,730 68	.....	212	180	1	3	9	27	600 00	855 00
Garden	Delta	295	3,000	1,212 50	50 00	42 36	1,406 25	.....	202	180	1	2	9	18	450 00	762 50
Gaylord	Otsego	273	10,000	1,770 00	70 00	31 67	2,893 75	8,400 00	184	180	1	4	9	36	630 00	1,140 00
Girard	Branch	76	3,000	585 00	40 00	25 00	1,140 21	666 67	69	180	1	1	9	9	360 00	225 00
Gladstone	Delta	520	22,000	3,935 00	100 00	41 93	8,683 34	16,735 00	446	189	1	7	10	70	1,000 00	2,935 00
Gladwin	Gladwin	267	8,000	2,000 00	65 00	33 75	2,506 90	.....	280	200	1	4	10	40	650 00	1,350 00
Gobleville	Van Buren	195	3,800	1,700 00	80 00	31 08	2,032 71	.....	161	190	1	3	10	28	800 00	900 00
Goodrich	Genesee	85	2,000	684 00	42 75	25 65	925 51	7 64	68	190	1	1	9	10	427 50	256 50
Gowen	Montcalm	64	2,000	473 33	31 78	23 42	764 55	37 00	61	180	2	1	9	8	286 00	187 33

Graafschap	Allegan	163	1,200	494 00	40 00	25 40	571 79		123	160	1	2	6	10	240 00	254 00
Grand Blanc	Genesee	104	2,500	690 00	45 00	25 00	1,068 74	800 00	80	180	2	1	9	9	405 00	225 00
Grand Haven	Ottawa	1,843	50,000	12,680 92	80 00	35 11	25,344 78		1,234	196	4	27	40	270	3,200 00	9,480 92
Grand Junction	Van Buren	146	3,500	586 00	40 00	24 18	1,147 32	310 00	106	160	1	2	8	11	320 00	266 00
Grand Marias	Alger	166	1,500	812 50	55 00	35 00	1,306 43	400 00	108	196	1	1	10	8	550 00	262 50
Grand Lodge Tp. 9	Eaton	292	12,000	2,760 00	90 00	37 20	3,518 92	1,000 00	317	200	1	7	10	50	900 00	1,860 00
G'd Ledge Tp. 11 frl	Eaton	286	8,000	1,700 00	65 00	35 00	2,428 56		261	200	1	3	10	30	650 00	1,050 00
Grand Rapids	Kent	25,990	1,172,723	180,378 35	108 95	51 14	261,277 80	351,900 00	14,201	191	18	314	180	3,140	19,612 13	160,766 22
Grandville	Kent	234	10,000	1,850 00	62 14	32 67	2,365 57	424 25	169	188	2	3	14	30	870 00	980 00
Grass Lake	Jackson	179	12,000	1,950 00	70 00	31 25	2,607 08	350 00	213	200	1	4	10	40	700 00	1,250 00
Grattan	Kent	105	2,000	765 00	50 00	35 00	931 33		87	180	1	1	9	9	450 00	315 00
Grayling	Crawford	378	12,000	3,815 00	100 00	35 63	5,784 41		384	200	1	8	10	79	1,000 00	2,815 00
Greenville	Montcalm	899	42,000	8,007 50	140 00	36 71	10,717 37		790	200	1	18	10	180	1,400 00	6,607 50
Grindstone City	Huron	292	3,000	1,350 00	70 00	32 50	1,647 68		214	200	1	2	10	20	700 00	650 00
Grosse Isle	Wayne	321	4,750	1,293 00		43 17	1,936 24		136	190		3		30		1,295 00
Hadley	Lapeer	88	2,900	886 25	51 50	21 84	992 64		66	190	1	2	10	16	515 00	371 25
Hamilton	Allegan	105	1,500	540 00	40 00	20 00	631 47	75 00	86	180	1	1	9	9	360 00	180 00
Hamtramck Tp. 4	Wayne	111	2,550	300 00		30 00	493 30		43	200		2		10		300 00
Hamtramck Tp. 8	Wayne	253	2,000	700 00		35 00	1,262 04		115	200		2		20		700 00
Hancock	Houghton	1,338	48,000	8,524 00	135 00	45 86	16,515 20	24,000 00	994	200	2	15	20	127	2,700 00	5,824 00
Hanover	Jackson	143	8,000	1,520 00	60 00	30 67	1,869 44		124	190	1	3	10	30	600 00	920 00
Harbor Springs	Emmet	385	4,500	2,045 61	63 33	38 96	2,455 77	1,700 00	249	180	2	4	12	33	760 00	1,285 61
Harrietta	Wexford	123	1,500	675 00	40 00	35 00	921 70	1,000 00	74	174	1	1	9	9	360 00	315 00
Harrison	Clare	229	3,500	1,597 50	60 00	34 40	1,852 57		211	190	1	3	9	29	600 00	997 50
Harrisville	Alcona	250	2,000	1,439 60	70 00	32 41	1,836 50	400 00	220	180	1	3	9	27	630 00	875 00
Hart	Oceana	355	15,000	2,420 00	65 25	32 03	4,568 84	5,600 00	294	180	2	6	15	45	978 75	1,441 25
Hartford	Van Buren	363	4,000	2,389 00	85 00	36 09	3,040 77		312	150	1	5	9	45	765 00	1,624 00
Hartland	Livingston	78	1,500	600 00	35 00	25 00	730 93		67	200	1	1	10	10	350 00	250 00
Hastings	Barry	842	50,000	7,290 00	120 00	35 24	10,232 56	5,000 00	854	200	1	17	10	170	1,200 00	6,090 00
Hermansville	Menominee	374	1,200	1,398 50	45 00	31 62	1,695 73		206	200	1	3	10	30	450 00	948 50
Hersey	Osceola	122	3,500	1,200 00	60 00	30 00	1,562 11		101	198	1	2	10	20	600 00	600 00
Hesperia	Newaygo	248	3,000	1,673 50	61 11	31 21	2,100 66		261	174	1	6	9	36	550 00	1,123 50
Highland Park	Wayne	141	12,000	1,550 00	75 00	40 00	2,722 87	6,000 00	110	200	1	2	10	20	750 00	800 00
Highland Station	Oakland	109	1,500	700 00	40 00	30 00	824 43		100	200	1	1	10	10	400 00	300 00
Hillman	Montmorency	233	5,500	1,520 00	40 36	30 00	2,218 02	280 35	195	155	3	2	28	13	1,130 00	390 00
Hillsdale	Hillsdale	1,159	44,000	8,512 35	81 03	36 04	15,520 26	5,000 00	916	190	3	18	29	171	2,350 00	6,162 35
Holland Tp. 4	Ottawa	112	1,500	300 00		30 00	429 80		66	200		1		10		300 00
Holland	Ottawa	2,303	55,000	10,902 00	115 00	31 86	16,497 19	20,200 00	1,580	200	2	27	20	270	2,300 00	8,602 00
Holland Tp. 3	Ottawa	125	1,800	524 00	38 00	16 00	629 24		103	200	1	1	10	9	380 00	144 00
Holland Tp. 9	Ottawa	136	2,000	560 00	40 00	16 00	711 33	650 00	88	200	1	1	10	10	400 00	160 00
Holland Tp. 6 frl	Ottawa	154	1,200	450 00	45 00		601 62	425 00	105	200	1		10		450 00	
Home Tp. 2	Newaygo	127	300	466 24	40 00	21 25	499 35		105	180	1	1	9	5	360 00	106 24
Holly	Oakland	365	15,000	3,450 00	100 00	35 00	4,249 71		361	200	1	7	10	70	1,000 00	2,450 00
Holt	Ingham	135	1,800	900 00	50 00	25 00	1,056 76		100	180	1	2	9	18	450 00	450 00
Holton	Muskegon	113	1,800	515 00		23 61	596 30	400 00	93	180		4		18		515 00
Homer	Calhoun	325	15,000	2,620 00	32 50	35 71	4,008 02	9,000 00	311	190	1	8	7	67	227 50	2,392 50
Hopkins Station	Allegan	123	1,200	908 00	50 00	25 17	1,120 49		100	180	1	3	9	18	450 00	453 00

TABLE XVI.—Continued.

Districts.	Counties.	No. of children between 5 and 20 years.	Estimated valuation of school property.	Amount paid for superintendence and instruction.	Average monthly wages of teachers.		Total cost of school.	Total indebtedness.	No. of children that attended school during the year.	No. of days' school.	No. of teachers employed.		Aggregate No. of mos. taught by all teachers.		Total wages of teachers for the year.	
					Men.	Women.					Men.	Women.	Men.	Women.	Men.	Women.
Horton	Jackson	95	$2,500	$976 00	$54 44	$27 00	$1,160 46		94	180	1	2	9	18	$490 00	$486 00
Houghton	Houghton	1,040	40,500	8,535 00	94 23	43 01	12,868 73		560	200	4	13	39	113	3,675 00	4,860 00
Howard City	Montcalm	444	5,000	2,777 75	85 40	33 75	3,342 83		383	185	2	6	10	57	854 00	1,923 75
Howell	Livingston	590	35,000	6,350 00	70 00	33 45	8,455 25		546	200	2	15	20	148	1,400 00	4,950 00
Hubbardston	Ionia	169	4,000	1,120 00	60 00	25 22	1,506 24		133	180	1	3	9	23	540 00	580 00
Hudson	Lenawee	381	16,000	4,295 25	100 00	34 69	6,245 42	$3,748 82	324	190	1	10	10	95	1,000 00	3,295 25
Hudson Tp. 5	Lenawee	241	7,000	2,030 00	105 56	30 00	2,527 74	1,000 00	200	180	1	4	9	36	950 00	1,080 00
Hudsonville	Ottawa	115	1,500	765 00	45 00	40 00	904 23	400 00	104	176	1	1	9	9	405 00	360 00
Humboldt	Marquette	63	3,000	400 00		40 00	464 56		44	199		1		10		400 00
Hume Tp. 1	Huron	99	800	380 00	38 00		413 85		65	200	1		10		380 00	
Ida	Monroe	124	1,550	540 00	35 00	25 00	667 12		100	180	1	1	9	9	315 00	225 00
Imlay City	Lapeer	543	15,000	3,200 00	100 00	31 43	4,264 86	3,500 00	332	200	1	8	10	70	1,000 00	2,200 00
Ionia	Ionia	1,583	60,000	12,300 89	130 00	40 74	19,285 84		1,221	200	1	27	10	270	1,300 00	11,000 89
Iron Mountain	Dickinson	2,361	85,000	15,320 37	128 00	46 74	28,326 24	40,500 00	1,724	200	3	27	25	270	2,700 00	12,620 37
Iron River	Iron	319	5,900	4,240 00	100 00	43 78	6,056 48	2,500 00	314	160	1	8	10	74	1,000 00	3,240 00
Ironwood	Gogebic	2,129	60,000	14,500 00	110 00	51 25	25,273 53	6,000 00	1,496	200	2	24	20	240	2,200 00	12,300 00
Ishpeming	Marquette	3,616	85,000	18,008 75	160 00	46 88	30,836 62	2,000 00	2,105	200	1	35	10	350	1,600 00	16,408 75
Ithaca	Gratiot	614	30,000	4,660 00	68 75	34 58	6,747 75	10,300 00	509	194	2	10	20	95	1,375 00	3,285 00
Jackson No. 1	Jackson	3,047	120,000	28,376 58	95 00	51 36	37,036 75	16,000 00	2,289	200	5	46	50	460	4,750 00	23,626 58
Jackson No. 17	Jackson	3,010	100,000	16,014 75	120 00	36 80	26,845 61	35,376 04	1,546	193	3	37	20	370	2,400 00	13,614 75
Jamestown	Ottawa	135	2,000	607 50	45 00	22 50	751 65		110	180	1	1	9	9	405 00	202 50
Jasper	Lenawee	116	2,000	657 00	45 00	28 00	730 99		87	180	1	1	9	9	405 00	252 00
Jennings	Missaukee	115	1,000	1,000 00	60 00	40 00	1,115 22		101	200	1	2	10	10	600 00	400 00
Jonesville	Hillsdale	417	30,000	3,380 00	100 00	39 67	4,355 38	215 30	238	200	1	6	10	60	1,000 00	2,380 00
Kalamazoo	Kalamazoo	5,737	300,000	37,785 15	140 00	41 46	59,400 19	10,000 00	3,400	186	3	81	30	810	4,200 00	33,585 15
Kalkaska	Kalkaska	329	9,000	3,325 00	105 56	43 98	4,540 43	1,000 00	341	180	1	6	9	54	950 00	2,375 00
Kendall	Van Buren	94	2,000	444 50	35 00	21 58	671 18		81	180	1	2	9	6	315 00	129 50
Kent City	Kent	152	3,150	877 00	50 00	26 69	1,111 89		146	180	1	2	9	16	450 00	427 00
Kingsley	G'd Traverse	175	3,000	845 00	50 00	30 31	1,320 51	2,000 00	141	180	1	2	9	13	450 00	395 00
Kingston	Tuscola	155	1,200	700 00	40 00	30 00	789 66		100	200	1	1	10	10	400 00	300 00
Kintner	Tuscola	100	700	295 00	35 17	28 00	348 20		77	180	1	1	6	3	211 00	84 00
Kochville	Saginaw	138	1,800	504 00	38 00	25 00	647 34		87	156	1	1	8	8	304 00	200 00
Lacota	Van Buren	105	2,500	577 50	40 00	24 17	777 06		96	177	1	1	9	9	360 00	217 50
Laingsburg	Shiawassee	220	5,000	1,500 00	60 00	30 00	1,802 75	30 00	211	200	1	3	10	30	600 00	900 00
Lake Ann	Benzie	205	4,800	1,150 00	60 00	31 95	1,883 24	1,500 00	137	160	1	3	8	21	480 00	670 00

Lake City	Missaukee	291	4,500	2,885 00	65 00	40 00	3,210 90	3,000 00	242	180	1	5	9	45	585 00	1,800 00
Lake Linden	Houghton	1,956	30,000	11,436 38	150 00	43 97	20,799 73	.....	1,127	192	1	24	10	226	1,500 00	9,936 38
Lake Odessa	Ionia	270	10,000	2,005 00	70 00	27 19	2,980 90	6,000 00	187	188	1	5	10	47	700 00	1,305 00
Lakeview	Montcalm	395	3,500	2,099 00	77 78	31 09	3,860 21	.....	329	180	1	7	9	45	700 00	1,399 00
Lamont	Ottawa	97	1,000	525 00	45 00	30 00	671 72	.....	64	140	1	1	7	7	350 00	210 00
L'Anse	Baraga	586	7,000	4,700 00	120 00	50 00	6,335 76	.....	425	200	1	7	10	70	1,200 00	3,500 00
Lansing	Ingham	4,560	153,000	31,963 25	100 00	44 39	51,274 63	48,000 00	2,934	186	4	63	40	630	4,000 00	27,963 25
Lapeer	Lapeer	790	38,000	6,365 00	81 50	31 57	8,945 84	.....	701	195	2	15	20	150	1,630 00	4,735 00
Lawrence	Van Buren	170	8,000	2,028 00	83 33	35 50	2,415 41	.....	154	180	1	4	9	36	750 00	1,278 00
Lawton	Van Buren	220	12,000	1,689 00	62 50	28 00	2,034 48	.....	268	183	1	4	10	38	625 00	1,064 00
Lee's Corners	Midland	134	1,300	552 95	.....	30 72	663 50	4 73	97	179	.....	2	.....	18	.....	552 95
Leonard	Oakland	117	3,000	769 00	47 50	15 47	1,206 90	2,500 00	110	189	1	3	10	19	475 00	294 00
Le Roy	Osceola	222	5,000	1,260 00	50 00	30 00	1,777 68	2,800 00	189	180	1	3	9	27	450 00	810 00
Le Roy Tp. 1	Osceola	109	800	252 00	.....	28 00	313 09	.....	61	180	.....	2	.....	9	.....	252 00
Leitch	Sanilac	132	800	320 00	32 00	.....	455 89	.....	112	197	1	.....	10	.....	320 00	.....
Leslie	Ingham	318	9,000	2,750 00	95 00	36 00	4,033 81	.....	311	196	1	5	10	50	950 00	1,800 00
Lewiston	Montmorency	154	2,800	1,440 00	60 00	33 33	2,291 85	600 00	129	180	1	3	9	27	540 00	900 00
Lexington	Sanilac	269	10,000	1,930 00	80 00	28 25	2,753 10	2,500 00	198	200	1	4	10	40	800 00	1,130 00
Linden	Genesee	183	5,000	1,300 00	70 00	30 00	1,936 87	.....	137	194	1	2	10	20	700 00	600 00
Linwood	Bay	145	950	500 00	50 00	.....	550 40	.....	89	200	1	.....	10	.....	500 00	.....
Lisbon	Ottawa	135	1,000	765 00	55 00	30 00	865 58	.....	116	180	1	1	9	9	495 00	270 00
Litchfield	Hillsdale	175	10,000	1,629 00	70 00	27 75	2,473 93	2,241 17	148	176	1	4	9	36	630 00	999 00
Long Rapids	Alpena	415	2,500	1,560 00	30 00	30 00	2,308 64	.....	290	120	2	8	5	47	150 00	1,410 00
Lowell	Kent	690	14,800	4,260 00	62 50	33 44	5,903 77	.....	462	200	3	10	20	90	1,250 00	3,010 00
Lucas	Missaukee	135	1,000	630 00	40 00	30 00	806 64	.....	109	180	1	1	9	9	360 00	270 00
Ludington	Mason	2,752	100,000	21,405 30	83 68	43 68	30,488 19	41,814 22	1,840	200	5	40	47	400	3,933 00	17,472 30
Luther	Lake	345	5,000	2,310 75	75 00	31 85	3,090 18	.....	315	200	1	6	10	49	750 00	1,560 75
Lyons	Ionia	230	4,000	1,568 00	72 22	34 00	1,990 04	.....	152	178	1	3	9	27	650 00	918 00
McBrides	Montcalm	177	2,000	1,125 00	57 00	29 21	1,246 39	.....	143	195	1	2	10	18	570 00	555 00
McMillan	Ontonagon	359	3,850	3,620 00	56 39	46 76	6,618 75	4,594 93	311	160	4	4	36	34	2,030 00	1,590 00
Mackinac	Mackinaw	211	3,000	1,160 00	75 00	35 00	1,666 62	.....	177	160	1	2	8	16	600 00	560 00
Mackinaw City	Cheboygan	180	5,000	1,305 00	70 00	37 50	1,588 14	1,480 00	131	175	1	2	9	18	630 00	675 00
Mancelona	Antrim	542	9,500	3,068 50	59 03	32 19	4,412 66	.....	504	180	2	9	17	64	1,003 50	2,060 00
Manchester	Washtenaw	406	10,000	3,150 00	95 00	31 43	4,478 49	.....	396	183	1	7	10	70	950 00	2,200 00
Manistee	Manistee	4,680	103,500	28,913 24	102 50	36 84	64,307 36	34,000 00	3,132	192	7	59	70	590	7,175 00	21,738 24
Manistique	Schoolcraft	960	20,000	8,294 25	70 00	54 63	12,196 22	5,000 00	716	200	1	18	10	139	700 00	7,594 25
Manton	Wexford	296	10,000	1,890 00	70 00	35 00	2,735 45	2,300 00	253	180	1	4	9	36	630 00	1,260 00
Maple Rapids	Clinton	183	3,000	1,550 00	65 00	30 00	1,893 15	.....	180	200	1	3	10	30	650 00	900 00
Marcellus	Cass	273	10,000	2,050 00	66 67	32 22	2,869 51	1,000 00	263	178	1	5	9	45	600 00	1,450 00
Marine City	St. Clair	1,229	32,000	4,647 50	95 00	33 61	16,418 41	11,000 00	572	200	1	11	10	110	950 00	3,697 50
Marion	Osceola	181	4,000	1,155 00	40 00	29 44	1,830 30	3,000 00	199	180	1	3	9	27	360 00	795 00
Marlette	Sanilac	335	1,000	1,950 00	65 00	35 00	2,965 64	.....	269	199	3	4	10	40	650 00	1,300 00
Marquette	Marquette	2,823	115,000	17,245 00	78 33	47 59	27,645 06	40,000 00	1,877	193	3	32	30	313	2,350 00	14,895 00
Marshall	Calhoun	1,253	100,000	9,672 50	99 17	35 25	12,283 79	.....	694	194	3	19	30	190	2,975 00	6,697 50
Martin	Allegan	131	4,800	1,227 40	70 00	38 74	1,646 38	2,400 00	106	180	1	2	9	18	630 00	597 40
Marysville	St. Clair	114	2,250	585 00	40 00	25 00	878 95	.....	100	180	1	1	9	9	360 00	225 00
Mason	Ingham	462	25,000	4,520 00	100 00	39 11	6,017 16	.....	469	190	1	12	10	90	1,000 00	3,520 00

TABLE XVI.—CONTINUED.

Districts.	Counties.	No. of children between 5 and 20 years.	Estimated valuation of school property.	Amount paid for superintendence and instruction.	Average monthly wages of teachers.		Total cost of school.	Total indebtedness.	No. of children that attended school during the year.	No. of days' school.	No. of teachers employed.		Aggregate No. of mos. taught by all teachers.		Total wages of teachers for the year.	
					Men.	Women.					Men.	Women.	Men.	Women.	Men.	Women.
Mattawan	Van Buren	78	$5,000	$440 00		$27 50	$555 47		63	160		2		16		$440 00
Mayville	Tuscola	260	10,000	1,640 00	$45 00	27 41	2,583 49	$7,451 21	201	194	2	3	20	27	$900 00	740 00
Mears	Oceana	124	1,000	585 00	35 00	30 00	688 47		87	180	1	1	9	9	315 00	270 00
Mecosta	Mecosta	211	2,000	810 00	40 00	25 00	1,034 93	400 00	160	180	1	2	9	18	360 00	450 00
Mellen Tp. 1	Menominee	349	3,000	990 00		36 67	1,261 61		244	180		3		27		990 00
Memphis	Macomb	217	4,000	1,600 00	70 00	30 00	2,335 55		160	200	1	3	10	30	700 00	900 00
Mendon	St. Joseph	231	12,000	1,935 97	68 46	32 69	2,554 48		154	172	2	4	13	32	890 00	1,045 97
Menominee	Menominee	3,925	156,000	25,293 65	98 67	46 53	97,842 87	75,000 00	2,568	196	3	48	30	480	2,960 00	22,333 65
Merrill	Saginaw	192	4,000	1,130 00	50 00	31 50	1,787 19	1,000 00	143	200	1	2	10	20	500 00	630 00
Metamora	Lapeer	151	3,500	1,089 00	65 00	28 00	1,306 87		115	180	1	2	9	18	585 00	504 00
Michigamme	Marquette	303	9,000	2,590 00	74 00	37 00	4,340 64	1,200 00	217	185	1	5	10	50	740 00	1,850 00
Middleville	Barry	229	14,000	2,080 00	41 00	28 33	2,843 29		228	200	3	3	30	30	1,230 00	850 00
Midland	Midland	701	38,000	4,800 00	90 00	35 46	7,102 00		664	200	1	11	10	110	900 00	3,900 00
Milan	Washtenaw	287	4,000	2,145 00	83 33	31 00	3,191 84		271	180	1	5	9	45	750 00	1,395 00
Milford	Oakland	353	16,000	2,990 00	71 76	29 50	4,118 10	4,000 00	309	200	2	6	17	60	1,220 00	1,770 00
Millburg	Berrien	115	2,000	464 00		33 14	789 75		85	160		2		14		464 00
Millington	Tuscola	188	6,300	1,346 50	55 00	26 74	1,799 35		162	197	1	3	10	29	550 00	796 50
Minden City	Sanilac	191	1,600	670 00	49 44	25 00	848 34		149	180	1	1	9	9	445 00	225 00
Monitor Tp. 6 frl.	Bay	142	1,355	585 00		32 50	738 63		108	180		2		18		585 00
Monroe	Monroe	2,004	37,000	7,172 75	72 91	34 51	12,014 36		764	198	4	13	34	136	2,480 00	4,692 75
Montague	Muskegon	456	20,000	3,450 38	50 00	35 01	4,942 76	1,500 00	285	198	2	10	20	70	1,000 00	2,450 38
Montgomery	Hillsdale	88	2,000	555 00	36 67	25 00	699 21	400 00	73	180	1	1	9	9	330 00	225 00
Morenci	Lenawee	292	9,000	2,686 50	88 89	33 08	3,644 56	555 71	238	180	1	8	9	54	800 00	1,886 50
Morley	Mecosta	179	4,000	1,000 00	40 00	30 00	1,956 11	450 00	152	200	1	2	10	20	500 00	600 00
Morris	Shiawassee	154	5,000	1,430 00	60 00	27 67	1,933 22		121	200	1	3	10	30	600 00	830 00
Moscow	Hillsdale	76	1,000	630 00	50 00	20 00	781 53		60	180	1	1	9	9	450 00	180 00
Mt. Clemens	Macomb	1,884	50,000	10,365 75	66 20	35 41	15,090 46		948	200	4	24	33	231	2,184 50	8,181 25
Mt. Morris	Genesee	159	5,000	800 00	50 00	25 00	1,368 33	2,000 00	111	177	1	2	9	14	450 00	350 00
Mt. Pleasant	Isabella	1,024	28,000	7,100 00	110 00	37 50	10,183 82	14,000 00	699	195	1	16	10	160	1,100 00	6,000 00
Muir	Ionia	178	4,000	1,220 00	45 31	30 94	1,605 43		149	158	2	2	16	16	725 00	495 00
Muskegon	Muskegon	7,078	400,000	42,675 58	139 01	43 23	125,028 21	45,000 00	4,965	186	4	91	38	865	5,282 28	37,393 30
Muskegon Tp. 4	Muskegon	109	1,500	480 00		24 00	610 42		92	194		2		20		480 00
Muskegon Heights	Muskegon	157	10,500	1,350 00	70 00	32 50	2,990 93	8,500 00	141	194	1	2	10	20	700 00	650 00

Munising	Alger	125	6,100	1,775 00	75 00	51 25	2,471 19	1,200 00	82	150	1	3	10	20	750 00	1,025 00
Nadeau	Menominee	188	2,500	900 00	50 00	40 00	1,108 89	600 00	131	198	1	1	10	10	500 00	400 00
Napoleon	Jackson	119	6,000	1,200 00	60 00	31 58	1,450 90	.....	120	190	1	2	10	19	600 00	600 00
Nashville	Barry	335	12,000	2,980 00	62 50	27 46	5,358 96	.....	360	200	2	7	20	68	1,250 00	1,730 00
National Mine	Marquette	460	4,000	2,650 00	95 00	50 00	4,917 25	613 82	282	196	1	4	10	34	950 00	1,700 00
Naubinway	Mackinac	180	2,000	900 00	50 00	40 00	1,198 35	.....	141	188	1	1	10	10	500 00	400 00
Negaunee	Marquette	2,063	50,000	12,469 50	130 00	45 27	22,161 13	12,225 00	1,153	200	2	22	20	218	2,600 00	9,869 50
Nessen City	Benzie	79	2,000	590 00	36 67	37 00	957 39	476 00	83	160	1	3	6	10	220 00	370 00
Newaygo	Newaygo	412	5,000	3,100 00	90 00	36 67	3,828 34	.....	342	200	1	6	10	60	900 00	2,200 00
New Baltimore	Macomb	271	20,000	1,200 00	60 00	30 00	1,763 89	.....	97	200	1	2	10	20	600 00	600 00
Newberry	Luce	444	10,000	4,815 00	76 67	42 63	8,328 38	3,000 00	366	200	3	6	30	59	2,300 00	2,515 00
New Boston	Wayne	137	1,000	540 00	40 00	20 00	941 65	.....	58	180	1	1	9	9	360 00	180 00
New Buffalo	Berrien	214	4,000	1,350 00	.....	37 50	1,895 52	.....	175	180	.....	4	.....	36	.....	1,350 00
New Haven	Macomb	188	1,100	945 00	50 00	27 50	1,146 71	.....	150	180	1	2	9	18	450 00	495 00
New Holland	Ottawa	200	800	637 62	38 76	25 00	800 20	112 38	136	200	1	1	10	10	500 00	250 00
New Hudson	Oakland	64	3,000	675 00	50 00	25 00	759 50	.....	51	180	1	1	9	9	450 00	225 00
New Troy	Berrien	146	4,000	995 00	55 56	27 50	1,229 10	.....	125	177	1	2	9	18	500 00	495 00
Niles	Berrien	1,178	50,000	9,806 20	99 14	38 29	12,815 42	325 00	892	186	3	20	29	181	2,875 00	6,931 20
North Adams	Hillsdale	115	10,000	1,575 00	75 00	33 33	2,074 17	.....	90	180	1	3	9	27	675 00	900 00
North Branch	Lapeer	267	10,000	1,960 00	75 00	30 00	3,303 53	2,800 00	258	190	1	4	10	40	750 00	1,200 00
North Muskegon	Muskegon	239	13,000	1,403 75	55 00	25 24	3,138 91	6,441 47	236	180	1	4	9	36	495 00	908 75
Northport	Leelanau	273	3,000	1,284 50	43 00	35 53	1,618 00	400 00	207	180	2	3	15	18	645 00	639 50
Northville	Wayne	429	20,000	3,545 00	110 00	34 93	4,599 44	.....	335	200	1	7	10	70	1,100 00	2,445 00
Norway	Dickinson	932	22,000	5,042 15	130 00	47 37	11,476 93	12,500 00	750	200	1	8	10	79	1,300 00	3,742 15
Nottawa	St. Joseph	96	2,000	585 00	.....	32 50	740 48	.....	91	177	.....	2	.....	18	.....	585 00
Noordeloos	Ottawa	121	350	500 00	50 00	.....	569 31	.....	75	200	1	.....	10	.....	500 00	.....
Nunica	Ottawa	121	3,000	630 00	45 00	25 00	795 24	.....	98	180	1	1	9	9	405 00	225 00
Oakley	Saginaw	96	2,000	505 00	45 00	25 00	604 08	.....	30	180	1	1	9	4	405 00	100 00
Ogden Center	Lenawee	109	2,500	470 00	33 75	25 00	585 47	.....	80	160	1	1	8	8	270 00	200 00
Okemos	Ingham	135	2,800	891 00	45 00	27 00	1,508 06	250 00	109	180	1	2	9	18	405 00	486 00
Olivet	Eaton	262	7,000	1,806 00	47 68	32 13	2,427 90	.....	206	188	2	3	19	28	906 00	900 00
Onekama	Manistee	173	1,500	1,170 00	60 00	35 00	1,457 96	280 00	168	180	1	2	9	18	540 00	630 00
Onondaga	Ingham	102	1,000	594 00	45 00	26 00	690 20	.....	79	177	1	1	8	9	360 00	234 00
Ontonagon	Ontonagon	647	8,200	6,312 42	87 22	36 48	9,267 24	11,550 00	423	140	2	15	18	130	1,570 00	4,742 42
Opechee	Houghton	1,264	1,000	7,943 13	68 62	41 26	14,110 67	.....	750	195	6	14	43	121	2,950 63	4,992 50
Orion	Oakland	213	8,000	1,224 00	44 00	25 08	2,148 92	6,130 00	172	200	2	3	13	26	572 00	652 00
Ortonville	Oakland	145	3,000	1,000 00	60 00	28 57	1,125 06	.....	118	198	1	2	10	14	600 00	400 00
Oscoda	Iosco	663	8,000	3,315 00	.....	36 83	4,376 07	.....	425	200	.....	9	.....	90	.....	3,315 00
Osseo	Hillsdale	82	2,800	430 00	28 75	25 00	517 57	.....	60	180	2	3	8	8	230 00	200 00
Ossineke	Alpena	172	1,500	460 00	.....	32 14	1,130 13	2,000 00	113	140	.....	2	.....	14	.....	460 00
Otisville	Genesee	180	2,000	940 00	45 00	24 50	1,212 37	.....	159	200	1	2	10	20	450 00	490 00
Otisco	Ionia	68	500	486 00	47 30	21 93	552 57	.....	45	180	1	3	7	6	332 50	153 50
Otsego	Allegan	571	13,000	3,551 00	100 00	31 56	4,812 36	.....	491	176	1	10	9	84	900 00	2,651 00
Otter Lake	Lapeer	128	1,200	639 00	45 00	26 00	802 52	78 34	108	178	1	2	9	9	405 00	234 00

TABLE XVI.—CONTINUED.

Districts.	Counties.	No. of children between 5 and 20 years.	Estimated valuation of school property.	Amount paid for superintendence and instruction.	Aggregate monthly wages of teachers.		Total cost of school.	Total indebtedness.	No. of children that attended school during the year.	No. of days' school.	No. of teachers employed.		Aggregate No. of mos. taught by all teachers.		Total wages of teachers for the year.	
					Men.	Women.					Men.	Women.	Men.	Women.	Men.	Women.
Overisel	Allegan	121	$2,000	$573 75	$40 14	$23 61	$666 86		94	169	1	1	8	9	$361 25	$212 50
Ovid	Clinton	363	25,000	3,450 00	100 00	35 00	5,966 40		359	200	1	7	10	70	1,000 00	2,450 00
Owosso	Shiawassee	2,220	110,000	17,050 00	88 00	42 17	48,415 91	$26,000 00	1,946	198	5	30	50	300	4,400 00	12,650 00
Oxford	Oakland	312	14,000	2,850 00	95 00	31 67	3,481 26		290	196	1	6	10	60	950 00	1,900 00
Palmer	Marquette	221	2,000	1,200 00	70 00	50 00	1,854 63		114	190	1	1	10	10	700 00	500 00
Palmyra	Lenawee	108	3,000	675 00	45 00	30 00	808 57		83	180	1	1	9	9	405 00	270 00
Palo	Ionia	125	4,000	1,084 88	53 49	27 50	1,389 41		91	200	1	2	10	20	534 88	550 00
Paris	Mecosta	70	1,200	540 00	40 00	20 00	641 36		58	180	1	1	9	9	360 00	180 00
Paris Tp. 1	Kent	112	1,500	645 00	47 00	19 40	773 77		77	200	1	1	10	9	470 00	175 00
Parma	Jackson	158	15,000	1,390 00	50 00	32 96	1,932 18		155	200	1	3	10	27	500 00	890 00
Paw Paw	Van Buren	334	40,000	3,880 00	80 00	38 00	5,548 50		278	197	2	6	20	60	1,600 00	2,280 00
Peck	Sanilac	156	800	690 00	47 00	22 00	771 22		142	194	1	1	10	10	470 00	220 00
Pentwater	Oceana	425	1,500	2,975 00	90 00	34 58	3,538 72		253	200	1	6	10	60	900 00	2,075 00
Perrinton	Gratiot	115	1,500	630 00	40 00	30 00	877 18		119	177	1	1	9	9	360 00	270 00
Perry	Shiawassee	169	4,000	1,480 00	46 50	27 50	2,343 03		150	200	2	2	20	20	930 00	550 00
Petersburg	Monroe	218	9,000	1,620 00	65 00	28 75	2,201 76		136	174	1	4	9	36	585 00	1,035 00
Petoskey	Emmet	1,249	25,000	8,121 40	120 00	35 51	12,125 97	13,000 00	796	197	1	18	10	178	1,200 00	6,921 40
Pewamo	Ionia	120	1,500	990 00	50 00	30 00	1,159 68		53	178	1	2	9	18	450 00	540 00
Pierson	Montcalm	179	2,000	630 00	40 00	30 00	933 51	170 00	124	178	1	1	9	9	360 00	270 00
Pigeon	Huron	200	900	585 00	40 00	25 00	616 11		99	180	1	1	9	9	360 00	225 00
Pinckney	Livingston	180	8,000	1,750 00	70 00	35 00	3,420 34	3,000 00	173	200	1	3	10	30	700 00	1,050 00
Pinconning	Bay	450	3,000	2,057 50	47 50	30 76	2,431 76	1,566 00	253	196	2	6	20	36	950 00	1,107 50
Pinnebog	Huron	180	1,800	700 00	45 00	25 00	929 31		139	200	1	1	10	10	450 00	250 00
Pittsford	Hillsdale	129	3,000	1,083 50	54 00	28 61	1,433 90	1,300 00	107	190	1	3	10	18	540 00	543 50
Plainwell	Allegan	386	15,000	3,240 40	70 59	31 39	4,193 03	404 00	351	177	2	8	17	64	1,200 00	2,070 40
Plymouth	Wayne	400	15,000	3,575 00	110 00	35 36	4,713 99		339	200	1	7	10	70	1,100 00	2,475 00
Pontiac	Oakland	1,496	100,000	13,190 00	95 00	39 13	21,761 16	11,000 00	1,300	195	4	24	40	240	3,800 00	9,390 00
Portage Tp. 2	Houghton	149	6,000	1,700 00	.....	56 67	3,250 82	3,000 00	96	194	.....	3	.....	30	.....	1,700 00
Port Austin	Huron	251	4,500	1,296 50	69 65	30 00	1,651 62		148	200	1	2	10	20	696 50	600 00
Port Hope	Huron	247	1,800	1,125 00	.....	37 50	1,350 87	285 00	138	200	.....	3	.....	30	.....	1,125 00
Port Huron	St. Clair	6,898	223,285	29,497 59	130 00	40 15	57,391 49		3,325	200	2	67	20	670	2,600 00	26,897 59
Portland	Ionia	502	16,000	4,650 00	63 16	32 86	5,878 90		474	183	2	11	19	105	1,200 00	3,450 00
Potterville	Eaton	156	4,000	968 00	50 00	29 89	1,274 22	131 00	151	176	1	2	9	18	450 00	538 00

Powers	Menominee	297	4,000	1,316 25	63 38	34 13	3,010 20	1,850 38	186	195	1	2	10	20	633 75	682 50
Prattville	Hillsdale	105	1,500	435 00	37 22	20 00	491 72	41 22	80	170	1	1	9	4	325 00	100 00
Quincy	Branch	273	8,000	3,050 00	100 00	34 17	4,086 56	----------	287	200	1	6	10	60	1,000 00	2,050 00
Quincy Tp. 1	Houghton	463	7,000	2,600 00	100 00	40 00	6,739 18	----------	258	196	1	4	10	40	1,000 00	1,600 00
Quinnesec	Dickinson	123	2,000	1,470 00	75 00	40 00	2,117 26	----------	98	187	1	2	10	18	750 00	720 00
Ravenna	Muskegon	156	2,800	850 00	50 00	35 00	1,581 54	650 00	136	200	1	1	10	10	500 00	350 00
Reading	Hillsdale	278	8,000	2,494 00	111 11	33 20	3,430 71	----------	218	180	1	5	9	45	1,000 00	1,494 00
Reed City	Osceola	717	26,000	5,548 75	100 00	37 28	25,461 98	17,808 56	655	200	1	13	10	122	1,000 00	4,548 75
Reese	Tuscola	202	2,000	742 50	50 00	32 50	886 02	----------	136	169	1	1	9	9	450 00	292 50
Republic	Marquette	763	16,000	6,035 00	126 00	47 75	8,645 29	----------	636	200	1	10	10	100	1,280 00	4,775 00
Richland Tp. 4	Saginaw	118	2,600	556 00	40 00	26 00	2,590 56	1,400 00	84	200	1	1	10	6	400 00	156 00
Richland Tp. 3	Montcalm	112	2,000	620 00	38 89	30 00	836 06	----------	83	183	1	1	9	9	350 00	270 00
Richland	Kalamazoo	116	4,500	1,300 00	60 00	35 00	1,640 02	----------	95	197	1	2	10	20	600 00	700 00
Richmond	Macomb	222	8,000	1,710 00	100 00	30 00	2,053 96	----------	222	180	1	3	9	27	900 00	810 00
Ridgeway	Lenawee	79	2,500	630 00	50 00	20 00	702 66	----------	62	180	1	1	9	9	450 00	180 00
Riga	Lenawee	183	6,000	450 00	45 00	25 00	514 20	----------	73	180	1	1	5	9	225 00	225 00
Riverside Tp. 1 frl.	Missaukee	298	4,000	1,146 50	45 00	34 83	2,357 44	2,800 00	214	200	1	2	10	20	450 00	696 50
Rochester	Oakland	339	12,000	2,105 00	82 50	32 00	2,907 24	2,000 00	271	200	1	4	10	40	825 00	1,280 00
Rockford	Kent	233	20,000	2,300 00	80 00	30 00	3,152 71	5,000 00	183	200	1	5	10	50	800 00	1,500 00
Rockland	Ontonagon	164	5,350	2,000 00	100 00	50 00	7,761 50	4,000 00	125	195	1	2	10	20	1,000 00	1,000 00
Rockwood	Wayne	101	800	270 00	------	30 00	297 42	----------	74	180	------	1	------	9	----------	270 00
Rogers City	Presque Isle	305	3,000	1,150 00	58 33	34 62	1,265 18	6,295 00	216	160	3	3	12	13	700 00	450 00
Romeo	Macomb	474	27,400	4,125 00	150 00	35 00	5,590 21	----------	438	200	1	8	10	75	1,500 00	2,625 00
Romulus	Wayne	125	3,000	590 00	50 00	20 00	758 26	2,700 00	81	180	1	1	9	7	450 00	140 00
Roscommon	Roscommon	276	3,500	1,220 00	55 56	40 00	1,820 58	3,000 00	167	180	1	2	9	18	500 00	720 00
Rose City	Ogemaw	106	3,500	280 00	30 00	32 50	1,685 10	2,500 00	69	180	1	1	5	4	150 00	130 00
Roxand Tp. 2	Eaton	102	1,000	630 00	------	35 00	682 78	54 06	70	180	------	2	------	18	----------	630 00
Royal Oak	Oakland	186	2,400	900 00	55 00	35 00	1,098 43	----------	112	195	1	1	10	10	550 00	350 00
Saginaw, E. S.	Saginaw	8,776	365,000	68,342 06	108 75	44 21	122,789 86	----------	5,443	191	10	130	100	1,300	10,875 00	57,467 05
Saginaw, W. S.	Saginaw	5,793	254,029	37,802 05	106 33	43 04	57,855 86	45,000 00	4,034	200	6	73	60	730	6,380 00	31,422 05
St. Charles	Saginaw	260	7,000	1,650 00	60 00	35 00	1,982 06	----------	280	200	1	3	10	30	600 00	1,050 00
St. Clair	St. Clair	921	35,000	6,088 75	100 00	36 35	9,714 92	7,000 00	667	194	1	14	10	140	1,000 00	5,088 75
St. Ignace	Mackinac	705	17,500	4,270 00	85 00	39 77	6,622 72	15,875 00	593	190	1	9	9	86	850 00	3,420 00
St. Johns	Clinton	898	39,500	8,519 00	110 00	39 05	12,340 18	3,200 00	859	200	1	20	10	190	1,100 00	7,419 00
St. Joseph	Berrien	1,287	50,000	9,110 33	166 67	41 14	15,870 46	----------	895	182	1	20	9	185	1,500 00	7,610 33
St. Louis	Gratiot	639	30,000	4,672 24	100 00	33 38	7,608 22	14,700 00	615	192	1	11	10	110	1,000 00	3,672 24
Salem	Washtenaw	72	1,000	525 00	45 00	20 00	595 10	----------	72	180	1	1	9	6	405 00	120 00
Saline	Washtenaw	268	25,000	2,580 00	90 00	33 60	3,538 95	100 00	250	200	1	5	10	50	900 00	1,680 00
Sand Beach	Huron	451	6,000	2,900 00	75 00	30 71	3,767 26	800 00	369	200	1	7	10	70	750 00	2,150 00
Sand Lake	Kent	131	2,500	1,071 00	61 10	24 81	1,305 58	----------	101	180	1	3	9	21	550 00	521 00
Sanilac Center	Sanilac	171	1,000	940 00	46 00	24 00	1,167 68	----------	140	200	1	2	10	20	460 00	480 00
Sanilac Tp. 2	Sanilac	105	1,500	360 00	40 00	------	406 35	----------	82	176	1	------	9	------	360 00	----------
Sanilac Tp. 3	Sanilac	93	900	330 00	36 67	------	377 65	3 51	62	180	1	------	9	------	330 00	----------
Sanilac Tp. 4	Sanilac	168	2,000	999 00	55 00	28 00	1,284 55	1,200 00	115	180	1	2	9	18	495 00	504 00

TABLE XVI.—CONTINUED.

Districts.	Counties.	No. of children between 5 and 20 years.	Estimated valuation of school property.	Amount paid for superintendence and instruction.	Average monthly wages of teachers.		Total cost of school.	Total indebtedness.	No. of children that attended school during the year.	No. of days' school.	No. of teachers employed.		Aggregate No. of mos. taught by all teachers.		Total wages of teachers for the year.	
					Men.	Women.					Men.	Women.	Men.	Women.	Men.	Women.
Sanilac Tp. 8 frl.	Sanilac	111	$800	$262 00	$29 11	.....	$418 99	.....	73	180	1	.....	9	.....	$262 00	.....
Saranac	Ionia	327	12,000	2,118 75	60 00	$35 32	2,773 53	.....	300	196	1	5	10	43	600 00	$1,518 75
Saugatuck	Allegan	333	7,000	1,954 50	68 30	29 33	2,394 96	.....	261	180	2	3	17	27	1,162 50	792 00
Sault Ste. Marie	Chippewa	2,008	50,000	13,023 85	92 50	44 70	19,077 49	$19,000 00	1,005	200	2	25	20	250	1,850 00	11,173 85
Schoolcraft	Kalamazoo	240	24,000	3,185 00	111 11	40 00	5,275 76	500 00	256	180	1	6	9	54	1,000 00	2,160 00
Scotts	Kalamazoo	100	4,000	648 00	40 00	32 00	926 65	700 00	75	180	1	1	9	9	360 00	288 00
Scottville	Mason	216	4,500	1,170 00	.....	43 33	1,528 85	2,000 00	189	180	.....	3	.....	27	.....	1,170 00
Sears	Osceola	137	2,000	585 00	35 00	30 00	875 28	1,500 00	98	180	1	1	9	9	315 00	270 00
Sebewaing	Huron	551	5,000	1,500 00	60 00	30 00	1,986 54	.....	296	200	1	3	10	30	600 00	900 00
Shaftsburg	Shiawassee	91	1,200	527 50	36 11	22 50	597 19	.....	76	180	1	1	9	9	325 00	202 50
Shelby	Oceana	357	6,000	2,394 00	59 58	28 46	3,032 86	.....	358	174	2	7	12	58	715 00	1,679 00
Shepherd	Isabella	209	2,500	1,200 00	55 00	31 67	1,401 42	.....	180	160	1	4	8	24	440 00	760 00
Sheridan	Montcalm	219	2,000	990 00	50 00	30 00	1,249 50	.....	206	177	1	2	9	18	450 00	540 00
Sheridan Tp. 1	Newaygo	101	1,000	441 00	33 00	16 00	534 01	.....	76	180	1	1	9	9	297 00	144 00
Sherman	Wexford	115	3,000	815 00	55 56	35 00	1,021 14	1,000 00	81	180	1	1	9	9	500 00	315 00
Sherwood	Branch	126	3,000	990 00	50 00	30 00	1,208 28	.....	118	180	1	2	9	18	450 00	540 00
Smith's Creek	St. Clair	97	1,800	425 00	47 22	.....	508 05	.....	91	180	1	.....	9	.....	425 00	.....
Smyrna	Ionia	91	2,500	675 00	42 50	25 00	774 64	.....	75	200	1	1	10	10	425 00	250 00
Soule	Huron	110	600	304 26	33 81	.....	366 94	.....	70	133	1	.....	9	.....	304 26	.....
South Arm	Charlevoix	173	3,300	896 00	46 56	32 72	1,673 55	2,000 00	138	160	1	2	8	16	372 50	523 50
South Boardman	Kalkaska	159	3,000	850 50	45 00	49 50	1,003 80	260 00	107	180	1	1	9	9	405 00	445 50
South Frankfort	Benzie	200	6,000	1,493 75	60 00	29 79	1,852 00	.....	133	200	1	3	10	30	600 00	893 75
South Haven	Van Buren	700	15,000	4,445 00	100 00	32 81	6,111 89	5,000 00	644	190	1	12	9	105	1,000 00	3,445 00
South Lyon	Oakland	217	4,000	1,555 00	70 00	30 54	1,893 02	.....	210	189	1	4	10	28	700 00	855 00
Sparta	Kent	310	5,000	2,377 50	70 00	33 55	3,200 51	.....	247	200	1	6	10	50	700 00	1,677 50
Spring Lake	Ottawa	386	7,000	2,115 00	86 11	29 56	2,572 51	100 00	302	180	1	5	9	45	775 00	1,340 00
Springport	Jackson	164	10,000	1,700 00	70 00	33 33	2,069 64	.....	172	200	1	3	10	30	700 00	1,000 00
Springwells Tp. 1	Wayne	763	10,000	2,113 00	70 00	35 75	3,125 89	5,500 00	317	200	1	6	10	40	700 00	1,413 00
Springwells Tp. 2	Wayne	804	24,000	3,835 00	100 00	40 50	6,257 79	18,000 00	425	196	1	8	10	70	1,000 00	2,835 00
Springwells Tp. 3	Wayne	360	10,000	1,080 00	45 00	37 50	9,695 32	7,500 00	115	200	1	3	4	24	180 00	900 00
Springwells Tp. 4	Wayne	820	13,000	1,950 00	60 00	33 75	2,815 01	9,700 00	240	196	1	5	10	40	600 00	1,350 00
Springwells Tp. 7	Wayne	566	3,000	1,350 00	70 00	32 50	1,736 51	.....	182	196	1	2	10	20	700 00	650 00
Springwells Tp. 4 frl	Wayne	127	2,000	390 00	.....	39 00	517 15	.....	75	195	.....	1	.....	10	.....	390 00

Stambaugh	Iron	245	3,600	2,275 00	73 50	42 80	2,651 77	1,209 47	196	180	1	4	10	36	785 00	1,540 00
Standish	Arenac	448	9,000	1,617 50	48 50	26 96	6,986 17	6,946 20	360	170	1	5	10	42	500 00	1,287 50
Stanton	Montcalm	437	9,000	3,828 55	85 00	33 10	6,375 40	.....	377	180	1	9	10	90	850 00	2,978 55
Stanwood	Mecosta	131	1,500	850 00	55 00	30 00	965 95	800 00	110	200	1	1	9	10	550 00	300 00
Stephenson	Menominee	969	11,125	4,455 00	57 50	28 74	8,670 90	3,000 00	575	200	2	13	20	115	1,150 00	3,305 00
Sterling	Arenac	223	2,500	666 00	.....	37 00	889 18	900 00	137	182	.....	2	.....	18	.....	666 00
Stevensville	Berrien	206	4,000	920 00	50 00	32 50	1,843 19	1,200 00	115	156	1	2	8	16	400 00	520 00
Stockbridge	Ingham	168	5,500	1,620 00	50 00	31 00	2,170 89	2,700 00	144	198	2	2	20	20	1,000 00	620 00
Stronach	Manistee	192	3,500	900 00	.....	45 00	1,330 27	.....	123	190	.....	2	.....	20	.....	900 00
Sturgis	St. Joseph	729	50,000	5,230 10	111 11	33 57	7,241 67	5,000 00	670	180	1	14	9	126	1,000 00	4,230 10
Summit City	G'd Traverse	82	1,400	455 00	.....	35 00	547 93	460 00	75	180	.....	2	.....	13	.....	455 00
Sumner	Gratiot	119	5,000	750 00	50 00	33 33	976 70	.....	125	179	1	1	9	9	450 00	300 00
Sunfield	Eaton	141	3,500	1,005 63	40 65	29 96	1,344 33	2,000 00	131	200	3	2	10	20	406 50	599 13
Sutton's Bay	Leelanau	182	5,000	1,080 00	48 50	35 00	1,283 78	.....	112	200	1	2	10	17	485 00	595 00
Swartz Creek	Genesee	77	2,000	567 00	.....	31 50	718 80	.....	83	180	.....	2	.....	18	.....	567 00
Tawas City	Iosco	512	4,000	2,790 00	80 00	39 80	3,817 34	.....	350	190	1	6	10	50	800 00	1,990 00
Tecumseh	Lenawee	531	26,000	6,018 76	100 38	33 67	7,965 27	.....	439	197	2	15	13	140	1,305 00	4,713 76
Tekonsha	Calhoun	200	7,000	1,320 00	60 00	30 00	1,769 01	.....	182	177	1	3	9	27	540 00	810 00
Thornville	Lapeer	99	1,800	540 00	35 00	25 00	702 28	.....	87	180	1	1	9	9	315 00	225 00
Three Oaks	Berrien	401	5,100	2,557 50	80 00	37 39	4,044 83	.....	341	190	1	5	10	46	800 00	1,757 50
Tittabawassee Tp. 1	Saginaw	84	600	270 00	30 00	.....	326 04	.....	53	180	1	.....	9	.....	270 00	.....
Three Rivers	St. Joseph	839	25,000	8,734 00	73 78	36 17	12,020 76	3,000 00	759	195	4	19	37	166	2,730 00	6,004 00
Thompson	Schoolcraft	137	1,000	724 75	50 00	34 33	1,357 17	.....	114	180	1	1	9	8	450 00	274 75
Torch Lake Tp. 6	Houghton	229	3,500	1,305 00	60 00	42 50	2,011 17	2,000 00	149	180	1	2	9	18	540 00	765 00
Traverse City	G'd Traverse	2,042	100,000	16,217 24	123 70	44 71	31,114 56	27,800 00	1,782	170	3	32	27	288	3,340 00	12,877 24
Trenton	Wayne	384	2,000	1,500 00	60 00	30 00	2,129 25	.....	210	200	1	3	10	30	600 00	900 00
Trufant	Montcalm	150	1,200	540 00	45 00	30 00	576 39	.....	91	178	1	1	6	9	270 00	270 00
Tuscola	Tuscola	134	1,500	680 00	55 56	20 00	778 50	.....	90	175	1	1	9	9	500 00	180 00
Tustin	Osceola	127	3,500	800 00	50 00	30 00	3,838 40	3,150 00	95	200	1	1	10	10	500 00	300 00
Ubly	Huron	165	2,000	720 00	50 00	30 00	850 87	235 00	159	180	1	1	9	9	450 00	270 00
Union City	Branch	404	20,000	4,231 00	100 00	35 90	5,530 96	.....	310	195	1	9	10	90	1,000 00	3,231 00
Unionville	Tuscola	188	2,500	1,030 00	50 00	26 50	1,269 15	.....	135	191	1	2	10	20	500 00	530 00
Utica	Macomb	404	12,000	2,232 00	52 29	29 49	3,379 55	.....	260	200	3	5	19	41	993 50	1,238 50
Vandalia	Cass	188	4,000	1,480 50	43 50	34 00	1,915 45	300 00	157	180	3	1	27	9	1,174 50	306 00
Vanderbilt	Otsego	140	3,000	865 00	45 00	30 00	1,179 46	.....	99	180	1	2	7	18	315 00	540 00
Vassar	Tuscola	608	20,000	4,060 00	132 00	30 44	4,845 44	.....	480	195	2	9	10	90	1,320 00	2,740 00
Vermontville	Eaton	218	10,000	1,839 96	70 00	30 00	2,397 62	.....	194	190	1	4	10	38	699 96	1,140 00
Vernon	Shiawassee	152	3,000	1,600 00	70 00	30 00	1,959 73	.....	116	200	1	3	10	30	700 00	900 00
Vicksburg	Kalamazoo	244	6,000	2,614 00	94 44	32 67	3,771 79	188 00	234	180	1	6	9	54	850 00	1,764 00
Vriesland	Ottawa	160	2,500	650 00	45 00	20 00	767 09	.....	105	200	1	1	10	10	450 00	200 00
Vulcan	Dickinson	324	5,150	2,650 00	60 00	48 33	4,148 78	.....	229	188	2	3	20	30	1,200 00	1,450 00
Wacousta	Clinton	96	1,200	540 00	35 00	25 00	690 00	.....	77	180	1	1	9	9	315 00	225 00
Wakefield	Gogebic	165	3,000	1,125 00	75 00	50 00	1,854 28	.....	110	180	1	1	9	9	675 00	450 00
Waldron	Hillsdale	151	3,000	720 00	45 00	22 50	849 28	.....	124	160	1	2	8	16	360 00	360 00

TABLE XVI.—Concluded.

Districts.	Counties.	No of children between 5 and 20 years.	Estimated valuation of school property.	Amount paid for superintendence and instruction.	Average monthly wages of teachers.		Total cost of school.	Total indebtedness.	No. of children that attended school during the year.	No. of days' school.	No. of teachers employed.		Aggregate No. of mos. taught by all teachers.		Total wages of teachers for the year.	
					Men.	Women.					Men.	Women.	Men.	Women.	Men.	Women.
Walker Tp. 11	Kent	181	$3,200	$540 00	$35 00	$25 00	$717 72		101	176	1	1	9	9	$315 00	$225 00
Warren	Macomb	126	2,000	650 00	50 00	22 22	785 01		84	178	1	1	9	9	450 00	200 00
Washington	Macomb	89	1,500	700 00	45 00	25 00	796 39		66	200	1	1	10	10	450 00	250 00
Washington Tp. 1	Sanilac	88	500	350 00		35 00	417 26		67	194		1		10		350 00
Washington Tp. 4	Sanilac	95	1,000	340 00	42 50		445 15		88	160	1		8		340 00	
Waterford	Oakland	92	4,500	800 00	50 00	30 00	917 41		87	197	1	1	10	10	500 00	300 00
Watervliet	Berrien	262	6,000	1,440 00	70 00	30 00	2,554 97	$2,500 00	208	180	1	3	9	27	630 00	810 00
Watrousville	Tuscola	105	2,300	560 00	45 00	25 00	661 70		90	160	1	1	8	8	360 00	200 00
Wayland	Allegan	145	5,000	1,395 00	52 50	25 00	1,744 08		125	180	2	2	18	18	945 00	450 00
Wayne	Wayne	378	25,000	2,750 00	100 00	26 17	3,333 56		352	195	1	6	10	60	1,000 00	1,750 00
Webberville	Ingham	180	2,000	855 00	45 00	25 00	1,043 04		143	180	1	2	9	18	405 00	450 00
Weldon Tp. 4 frl	Benzie	207	3,271	966 25	50 00	41 08	2,007 60	2,078 34	179	140	1	2	7	15	350 00	616 25
Weston	Lenawee	101	4,000	630 00	45 00	25 00	689 96		84	180	1	2	9	9	405 00	225 00
West Bay City	Bay	4,293	150,000	29,286 65	81 79	46 20	48,477 08	77,000 00	2,508	193	7	51	70	510	5,725 00	23,561 65
West Branch	Ogemaw	461	7,500	2,440 00	67 37	40 00	3,424 16	6,000 00	405	190	2	3	19	29	1,280 00	1,160 00
Wheeler	Gratiot	101	1,000	537 50		33 59	615 17		64	160		2		16		537 00
White Cloud	Newaygo	207	5,000	1,259 00	64 89	37 50	1,775 21		181	180	1	2	9	18	584 00	675 00
Whitehall	Muskegon	571	30,000	3,902 50	105 56	29 82	5,063 36		426	180	1	12	9	99	950 00	2,952 50
Whittemore	Iosco	134	1,500	353 08	50 00		436 86	695 78	90	200	1		10		500 00	
White Pigeon	St. Joseph	250	14,000	2,700 00	110 00	32 00	3,681 32		223	200	1	5	10	50	1,100 00	1,600 00
White Rock	Huron	78	1,200	300 00	37 50		417 67		58	160	1		8		300 00	
Williamsburg	G'd Traverse	110	1,200	540 00	60 00	30 00	930 40	100 00	96	120	1	1	6	6	360 00	180 00
Williamston	Ingham	389	20,000	3,250 00	57 50	35 00	4,807 41		285	200	2	6	20	60	1,150 00	2,100 00
Wixom	Oakland	72	1,500	608 00	45 00	22 00	679 70		65	180	1	1	9	9	405 00	198 00
Wolverine	Cheboygan	197	3,000	1,121 25	82 50	41 42	1,413 74	1,000 00	123	150	1	2	8	15	500 00	621 25
Woodland	Barry	116	3,000	1,068 94	58 77	32 50	1,411 48		89	180	2	2	9	18	483 94	585 00
Woodville	Newaygo	57	1,000	262 00	26 00	30 00	326 58	10 00	40	180	1	2	2	7	52 00	210 00
Worth	Arenac	167	2,000	468 00	32 00	20 00	622 13	200 00	86	180	1	1	9	9	288 00	180 00
Worth Tp. 12 frl	Sanilac	94	1,000	360 00	40 00		424 05		68	180	1		9		360 00	

Wyandotte	Wayne	1,519	53,000	5,715 00	105 00	35 88	10,844 92	4,000 00	825	200	1	13	10	130	1,050 00	4,665 00
Wyoming Tp. 7	Kent	162	4,000	625 00	32 50	30 00	1,111 34	3,000 00	126	198	1	1	10	10	325 00	300 00
Wyoming Tp. 9	Kent	198	8,000	1,100 00	65 00	22 50	1,718 91	5,000 00	100	200	1	2	10	20	650 00	450 00
Yale	St. Clair	366	11,000	2,165 00	80 00	25 75	3,178 91	5,030 00	342	196	1	6	10	53	800 00	1,365 00
York	Washtenaw	112	4,500	684 00	46 00	30 00	927 73	100 00	99	180	1	1	9	9	414 00	270 00
Ypsilanti	Washtenaw	1,650	55,000	11,389 80	163 16	44 81	41,998 93	9,663 00	1,008	185	2	20	19	185	3,100 00	8,289 80
Zeeland	Ottawa	532	4,000	1,850 00	55 00	26 00	2,740 48	.....	393	200	1	5	10	50	550 00	1,300 00
Zilwaukee	Saginaw	372	5,000	1,700 00	65 00	35 00	2,062 10	.....	306	200	1	3	10	30	650 00	1,050 00
Zutphen	Ottawa	161	1,000	542 00	38 00	22 22	710 64	.....	117	180	1	1	9	9	342 00	200 00

TABLE

Miscellaneous statistics of city schools as reported

Line number.	Cities having a population over 4,000, census 1890.	School population from inspectors' report.	Enrollment.				Average number belonging.				Average daily attendance.				No. of H. S. dept.	
			High school department.	Grammar department.	Primary department.	Whole school.	High school department.	Grammar department.	Primary department.	Whole school.	High school department.	Grammar department.	Primary department.	Whole school.	M.	F.
1	Adrian	2,565	223	476	1,034	1,733	187	390	759	1,336	180	367	709	1,256	2	6
2	Alpena	4,657	178	456	1,738	2,372	146	368	931	1,445	137	350	875	1,362	3.2	2
3	Ann Arbor	3,047	689	607	1,144	2,440	553	503	974	2,030	529	489	943	1,961	8	9
4	Au Sable	787	50	116	362	528	47	106	329	482	43	95	296	434	1	1
5	Battle Creek	3,763	288	826	1,715	2,829	243	689	1,388	2,320	237	665	1,333	2,235	2	6
6	Bay City	11,482	469	1,791	4,004	6,264	314	1,024	2,225	3,563	305	996	2,146	3,447	4	7
7	Big Rapids	1,680	115	392	687	1,194	90	344	430	864	90	335	404	729	----	3
8	Cadillac	1,565	88	380	799	1,267	78	335	719	1,132	75	310	683	1,068	1	4
9	Calumet	5,320	87	479	2,305	2,871	79	507	1,888	2,595	77	463	1,608	2,148	----	----
10	Cheboygan	2,437	60	350	959	1,369	48	215	564	827	46	202	524	772	.5	1
11	Coldwater	1,334	187	389	548	1,124	160	322	421	903	155	305	389	849	3.2	3
12	Detroit	74,876	1,731	14,024	37,521	53,276	1,358	7,185	17,421	25,964	1,315	6,849	16,378	24,542	12	34
13	Escanaba	2,278	93	269	996	1,358	66	150	592	808	54	100	604	758	.5	4
14	Flint	2,719	294	490	1,146	1,930	------	------	------	------	260	445	850	1,555	4	6
15	Grand Haven	1,843	105	509	825	1,439	91	389	586	1,066	88	372	555	1,015	2.2	1
16	Grand Rapids	25,990	1,227	4,784	12,742	18,753	939	3,051	7,504	11,494	898	2,898	7,063	10,859	12.2	23
17	Ionia	1,583	142	267	697	1,106	133	258	503	894	131	245	483	859	1	5
18	Iron Mountain	2,361	64	455	1,794	2,313	50	328	1,033	1,411	49	307	979	1,335	1.5	1
19	Ironwood	2,129	88	702	1,036	1,826	60	536	724	1,320	52	480	512	1,044	.8	2
20	Ishpeming	3,616	110	507	1,443	2,060	99	406	1,188	1,693	97	388	1,090	1,575	1	4
21	Jackson No. 1	3,047	259	641	1,389	2,289	217	537	1,102	1,856	203	513	1,047	1,763	3.4	4
22	Jackson No. 17	3,010	147	626	1,322	2,095	111	342	739	1,192	109	321	703	1,133	1	4
23	Kalamazoo	5,737	363	1,845	2,699	4,907	285	1,140	1,429	2,854	272	1,088	1,367	2,727	2	10
24	Lansing	4,560	418	1,058	1,831	3,307	358	793	1,323	2,474	350	760	1,254	2,364	3	8
25	Ludington	2,752	165	530	1,227	1,922	140	426	983	1,549	133	412	837	1,382	4.2	2
26	Manistee	4,680	202	751	2,179	3,132	177	486	1,286	1,949	169	465	1,231	1,865	5	3
27	Marquette	2,823	118	462	1,297	1,877	109	364	871	1,344	107	359	841	1,307	1	4.3
28	Menominee	3,925	110	869	1,589	2,568	98	651	1,192	1,941	94	587	1,149	1,830	3	2
29	Monroe	2,004	123	255	386	764	103	193	264	560	99	185	242	526	3	3
30	Mt. Clemens	1,884	------	------	------	948	------	------	------	784	------	------	------	748	2	3
31	Muskegon	7,078	271	1,191	3,005	4,467	233	1,063	2,510	3,806	223	1,021	2,380	3,624	3.4	5
32	Negaunee	2,063	77	394	830	1,301	68	299	593	960	66	290	560	924	.8	2
33	Niles	1,178	124	277	599	1,000	108	224	465	797	106	215	441	762	2	2
34	Owosso	2,220	215	607	1,347	2,169	193	480	908	1,581	179	453	839	1,471	2	3
35	Port Huron	6,898	324	1,309	2,331	3,964	292	929	1,580	2,801	284	864	1,543	2,691	2	9
36	Pontiac	1,496	171	352	825	1,348	150	302	593	1,045	147	289	556	992	2.4	3
37	Saginaw, E. S.	8,776	460	1,504	3,357	5,321	369	1,203	2,509	4,081	358	1,165	2,393	3,916	6	9
38	Saginaw, W. S.	5,793	241	940	2,871	4,052	186	735	2,114	3,035	176	698	1,940	2,814	1	8
39	S'lt Ste. Marie	2,003	92	599	1,273	1,964	68	312	659	1,039	65	298	602	965	.2	3
40	Traverse City	2,042	254	651	874	1,779	------	------	------	1,211	------	------	------	1,131	3	4
41	West Bay City	4,293	192	697	1,508	2,397	165	421	1,272	1,858	157	500	1,081	1,738	3	4
42	Ypsilanti	1,650	149	263	596	1,008	125	214	384	723	120	195	344	659	3	2

* Where a blank occurs in this table the item was not reported.

XVII.*

by superintendents for the school year 1894–5.

Regular teachers employed.						Portion of time superintendent's devoted to supervision.	No. of special teachers.	Av. No. pupils to each teacher.				No. of non-resident pupils.				Average age of class.			Number studying.				Does school give special instruction in			Has school kindergarten below primary grade?	Portion of time in first prim. devoted to kindergarten work.	No. of U. S. flags.	Line number.
Gram. dept.		Primary dept.		Whole school.																									
M.	F.	M.	F.	M.	F.			H. S. dept.	Gram. dept.	Prim. dept.	Whole school.	H. S. dept.	Gram. dept.	Prim. dept.	Whole school.	Graduated.	Promoted to high school.	Promoted to gram. dept.	Latin.	Greek.	French.	German.	Vocal music?	Drawing?	Penmanship?				
.5	11	.5	16	3	33	All	2.5	23	34	46	37	37	11	8	56	18	15	11.5	70	..	9	33	yes	yes	yes	no	1-2	5	1
.3	9	.5	20	4	31	All	...	29	39	45	40	...	..	..	...	18.5	14.4	11.2	57	..	...	26	no	no	no	no	.....	8	2
...	13	...	22	8	44	4-5	3	33	39	44	40	247	34	34	315	18.7	14.7	10.5	296	62	58	158	yes	yes	no	no	1-25	7	3
...	2	...	6	1	9	2-5	...	24	53	55	48	3	5	3	11	15.5	13	8.5	16	..	...	...	no	no	no	yes	1-2	2	4
...	18	...	39	2	63	All	2	30	38	35	35	36	18	3	57	19	14	11	188	14	...	45	yes	yes	no	no	1-20	4	5
...	32	1	58	5	97	All	3	29	32	38	35	29	1	9	39	18	15.5	11.5	145	..	26	92	yes	yes	yes	no	.....	10	6
...	8	...	12	1	23	5-7	1	30	43	35	36	...	..	..	40	17.5	...	...	60	..	...	45	...	yes	yes	yes	1-2	4	7
...	8	...	16	1	28	3-5	2	16	42	45	39	...	..	..	...	17	...	...	23	..	...	10	yes	yes	yes	yes	1-3	1	8
...	...	...	...	3	43	All	2	26	56	55	52	10	..	..	10	19	...	...	32	..	...	34	yes	yes	yes	yes	1-6	7	9
3 .3	4	.2	12	4	17	1-2	...	32	31	47	39	...	..	..	...	18	15	11	...	..	...	...	no	no	no	no	.....	7	10
.4	9	.4	11	3	21	4-5	2	27	36	38	37	25	20	1	46	19	15.2	11.4	80	5	...	48	yes	yes	yes	no	.....	4	11
13	219	5	393	30	646	All	8	29	31	44	39	...	..	..	150	...	...	...	835	39	112	235	yes	yes	yes	no	.....	60	12
.3	4	.2	15	1	23	1-2	1	15	38	39	35	2	1	..	3	17	14	11	40	.	8	...	yes	yes	no	yes	1-4	4	13
...	13	...	24	4	47	All	2	29	38	48	43	36	11	5	52	18	...	...	40	3	60	50	yes	yes	yes	no	1-3	7	14
.3	9	1.5	14	4	24	5-6	3	30	42	38	38	8	10	7	25	18.4	14.5	11.3	33	..	...	7	yes	yes	yes	yes	.....	1	15
2.5	86.8	2.3	202.2	17	312	All	3	27	34	37	35	74	40	15	129	18.5	14.5	11.3	441	44	97	263	yes	yes	yes	yes	1-7	35	16
...	8	...	12	1	25	6-7	2	22	32	42	35	...	..	..	...	17.5	...	...	15	6	10	15	yes	yes	yes	yes	1-3	4	17
1.3	7	.2	18	3	26	1-2	...	20	41	58	50	4	1	..	5	17	14.5	11	18	..	...	6	no	no	no	no	1-12	4	18
.1	9	.1	13	1	24	3-4	1	20	59	56	53	...	..	..	...	17	14	10	26	..	...	21	yes	yes	no	yes	.....	6	19
...	10	...	21	1	35	All	1	20	41	57	47	1	1	..	2	17.5	...	...	14	..	...	15	yes	no	no	no	.....	4	20
2.3	15	.3	25	6	44	All	2	29	31	43	37	22	4	1	27	19.1	15.4	11.3	90	12	14	37	yes	yes	no	yes	1-3	4	21
1	8	...	20	2	32	All	2	23	38	37	35	...	..	..	11	17.5	13.5	...	50	..	...	25	yes	yes	no	no	1-4	5	22
...	31	1	40	3	81	All	1	24	36	35	34	38	20	6	64	18.9	...	...	250	12	18	30	yes	no	no	no	.....	9	23
...	22	...	33	3	63	All	1	32	36	40	38	27	35	8	70	19.5	15	10.5	187	2	...	75	yes	yes	yes	no	1-5	11	24
.3	11	.5	26	5	39	All	1.4	23	37	38	35	16	4	2	22	19	13	10	60	3	...	33	yes	yes	no	no	1-2	..	25
1	12	...	34	6	49	All	3	22	37	38	35	8	9	2	19	18	14	8	...	5	16	31	yes	yes	yes	no	1-30	6	26
1.5	8	.5	18	3	30.3	2-3	1	20	38	47	40	2	..	1	3	18.2	13.5	8.5	50	..	12	7	yes	no	no	no	.....	5	27
...	15	...	28	3	45	All	2	20	43	43	40	...	..	..	9	17.5	14	10	50	7	...	10	yes	yes	no	yes	.....	8	28
...	5	...	6	3	14	1-2	...	17	39	44	33	34	28	15	77	18.6	14.5	11	44	13	...	90	no	no	yes	no	.....	3	29
...	6	...	11	2	20	5-6	1	..	..	..	36	...	..	..	20	...	...	...	25	..	...	10	yes	yes	yes	yes	.....	3	30
.3	29	.3	57	4	91	All	2	28	36	43	40	7	11	5	23	...	...	...	109	..	37	28	yes	yes	yes	yes	.....	5	31
.1	7	.1	12	1	21	3-4	...	23	43	49	44	...	..	..	...	18	14	10	35	..	11	8	no	no	no	yes	1-6	1	32
1	4	...	11	3	17	2-3	1	27	45	42	39	35	20	7	62	...	...	...	73	..	...	33	yes	yes	yes	yes	.....	5	33
2	8	...	19	4	30	All	...	39	48	48	47	31	10	1	42	18	13.7	9.5	53	..	...	25	no	no	no	no	.....	4	34
...	26	...	32	2	67	All	...	26	35	49	41	13	2	1	16	18.5	14	10	102	10	18	38	no	no	no	no	.....	14	35
1.3	7	.3	13	4	23	2-3	1	28	36	44	39	50	10	..	60	19	15	11	66	13	7	19	yes	no	no	no	.....	6	36
5	31	1	60	11	100	All	3	24	33	42	37	...	..	..	40	...	...	...	225	15	...	125	yes	yes	yes	yes	.....	13	37
3	23	1	52	5	75	All	3	21	28	40	36	11	8	5	24	...	...	...	100	10	51	45	yes	yes	no	yes	.....	10	38
.1	7	1.7	15	2	25	4-5	.5	21	44	41	38	8	4	6	18	18.5	14	10	20	..	...	16	yes	no	no	no	1-2	1	39
...	9	...	17	3	30	All	2	..	..	..	38	...	..	..	94	19	14	10	60	..	...	18	yes	yes	yes	yes	1-2	4	40
4	14	...	31	7	49	All	2	24	23	41	33	10	9	17	36	19	13	8.9	60	2	...	42	yes	yes	no	yes	.....	8	41
...	7	...	11	3	20	3-5	1	25	31	35	31	...	..	..	42	18.5	15	11.9	65	5	...	42	yes	yes	no	no	1-3	4	42

TABLE XVII.—

Line number.	Cities having a population between 1,000 and 4,000, census of 1890.	School population from inspectors' report.	Enrollment.				Average number belonging.				Average daily attendance.				No. of regular			
			High school department.	Grammar department.	Primary department.	Whole school.	High school department.	Grammar department.	Primary department.	Whole school.	High school department.	Grammar department.	Primary department.	Whole school.	H. S. dept.		Gram. dept.	
															M.	F.	M.	F.
1	Albion	1,507	251	397	553	1,201	156	239	420	815	150	230	405	785	.4	5	.3	.6
2	Algonac	435	40	60	45	145	40	60	45	145	40	56	42	138	1	1	----	1
3	Allegan	658	110	227	299	636	85	195	243	523	90	196	231	517	1	3	----	5
4	Alma	538	78	153	343	574	62	104	201	367	59	101	186	346	.5	1.6	----	2.4
5	Atlantic Mine	570	----	117	281	398	----	93	203	296	----	89	177	266	----	----	1	1.5
6	Belding	815	65	158	408	631	52	136	350	538	48	125	269	442	.5	1	----	6
7	Benton Harbor	1,444	153	608	718	1,479	117	325	575	1,017	117	298	525	940	1	5	1	9
8	Bessemer	618	47	156	433	636	42	134	309	485	41	130	283	454	1	1	----	3
9	Blissfield	222	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
10	Buchanan	577	104	181	255	540	88	148	186	422	84	141	171	396	1	2	----	4
11	Caro	619	108	198	456	762	93	129	233	455	89	121	212	422	.6	2	.2	3
12	Carrollton No. 1	465	51	85	220	356	29	69	134	232	33	54	116	203	1	----	----	2
13	Cassopolis	414	108	135	186	429	95	100	153	348	92	92	128	312	.6	2	.2	3
14	Cedar Springs	346	46	152	210	408	32	91	160	283	30	70	137	237	1	1	----	2
15	Champion	551	41	70	319	430	35	46	229	310	34	43	201	278	.5	2	.3	2
16	Charlevoix	536	68	145	265	478	53	123	190	375	50	116	185	351	1	1	----	3
17	Charlotte	1,055	145	326	579	1,050	121	265	421	807	117	250	402	769	1.1	4	.5	6
18	Chelsea	443	73	136	144	353	65	134	144	343	53	120	130	303	.7	2	1.1	1
19	Chesaning	336	105	105	145	355	80	75	116	271	75	70	106	251	2	1	2	2
20	Clare	568	40	188	231	459	31	132	180	343	29	119	171	319	1	1	----	3
21	Constantine	256	85	82	98	265	75	73	71	219	74	69	65	208	.5	3	.3	2
22	Corunna	423	60	149	161	370	47	122	125	294	43	117	117	277	1.8	2	.1	5
23	Decatur	394	95	110	194	399	83	96	143	322	80	82	131	293	1	2	----	2
24	Dowagiac	985	142	231	541	914	114	184	404	702	111	181	391	683	.4	3	1.3	4
25	Dundee	397	60	110	150	320	58	106	120	284	55	100	110	265	2	----	----	2
26	East Lake	731	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
27	East Tawas	678	42	197	387	626	36	141	299	476	33	132	285	451	1	----	----	3
28	Eaton Rapids	582	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
29	Elk Rapids	424	36	96	300	432	28	81	224	333	32	76	211	319	.6	2	.2	3
30	Essexville	582	----	84	113	197	----	59	99	158	----	52	71	123	----	----	1	1
31	Evart	507	72	125	192	389	65	116	177	358	65	116	177	358	----	----	----	----
32	Fenton	595	94	176	256	526	74	142	192	408	71	135	178	384	1.8	1	.1	4
33	Fowlerville	357	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
34	Ford River	234	----	55	101	156	----	41	80	121	----	30	68	98	----	----	1	----
35	Frankfort	569	55	98	283	436	48	78	188	314	46	73	184	303	.8	1.5	.1	2.5
36	Fremont	391	71	137	163	371	54	113	119	286	53	108	110	271	1	1	----	3
37	Gladstone	520	42	87	317	446	32	58	211	301	29	53	204	286	.5	1	.3	2
38	Gr'd Ledge No. 9	292	64	99	154	317	53	75	116	244	50	69	105	224	1	1	----	2
39	Greenville	899	131	205	470	806	107	167	323	597	102	159	293	554	1	4	2	2
40	Hancock	1,338	108	236	758	1,102	76	148	374	598	73	144	358	575	1.4	1.5	.3	3.5
41	Harbor Springs	385	34	85	130	249	30	75	119	224	27	72	115	214	1	----	----	2
42	Hartford	363	64	103	146	313	60	98	140	298	60	96	134	280	1	1	----	2
43	Hastings	842	184	238	390	812	158	197	315	670	155	188	309	652	1	3	----	5
44	Hillsdale	1,159	176	327	465	968	151	268	315	734	142	258	305	705	2.2	2	.4	7
45	Holland	2,303	114	550	1,389	2,053	91	325	845	1,261	86	306	773	1,165	1.2	2.2	.4	7.3
46	Holly	365	70	120	162	352	65	103	123	291	60	97	106	263	.8	2	.1	2
47	Homer	325	68	92	177	337	60	83	131	274	57	75	122	254	1	2	----	2
48	Houghton No. 1	1,040	49	134	387	570	42	105	251	398	41	102	243	386	1.5	1	1.3	3
49	Howard City	444	72	123	163	358	----	----	----	----	56	86	127	269	1	1	----	2
50	Howell	590	166	209	254	629	143	169	214	526	141	157	198	496	1.6	3	.2	4.5
51	Hudson	381	112	120	159	391	85	108	122	315	85	99	110	294	.8	2	.1	2
52	Imlay City	543	68	232	261	561	46	135	151	332	41	107	112	260	.6	1	.2	3
53	Iron River	319	36	78	171	285	30	73	165	268	29	70	159	258	1	1	----	2
54	Ithaca	614	103	188	333	624	90	149	238	477	85	142	221	448	.8	1.5	1.1	3.5
55	Jonesville	417	80	136	154	370	54	79	105	238	52	77	100	229	1	1.5	----	2
56	Kalkaska	329	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
57	Lake Linden	1,956	83	236	808	1,127	71	187	558	816	71	181	536	778	.7	2	.2	6
58	Lakeview	395	40	60	220	320	37	38	184	259	37	38	205	280	----	----	----	----
59	Lapeer	790	125	236	270	631	119	221	214	554	101	167	223	491	2	3	1	5
60	Leslie	313	77	177	177	431	56	94	94	244	51	86	84	221	1	1	----	2

CONTINUED.

teach's emplo'd.				Portion of superintendents' time devoted to supervision.	No. of special teachers.	Ave. No. pupils to each teacher.				No. of non-resident pupils.				Average age of class.			Number studying				Does school give special instruction in			Has sch'l kindergarten below primary grade?	Portion of time in 1st prim. devoted to kindergarten work.	No. of U. S. flags.	Line number.
Prim. dept.		Whole school.																									
M.	F.	M.	F.			H. S. dept.	Gram. dept.	Prim. dept.	Whole school.	H. S. dept.	Gram. dept.	Prim. dept.	Whole school.	Graduated.	Promoted to high school.	Promoted to gram. dept.	Latin.	Greek.	French.	German.	Vocal music?	Drawing?	Penmanship?				
.3	10	1	21	2-3	2	31	39	42	37	38	3	..	41	18	14	11	50	..	..	80	yes	yes	no	no	.....	5	1
....	1	1	3	1-6	..	20	60	45	36	..	..	..	4	15	....	....	..	..	..	..	....	....	....	....	1-5	1	2
....	8	1	16	1-2	1	21	39	30	30	20	19	1	39	18	14	11	45	..	..	16	yes	no	no	no	.....	1	3
....	5	.5	9	1-2	1	30	44	40	38	26	18	8	52	20	15	10	27	..	..	9	yes	no	yes	yes	1-4	1	4
....	4.5	1	6	1-4	..	..	37	51	45	..	..	..	12	....	....	....	..	..	..	..	no	yes	no	no	.....	1	5
....	7	.5	14	1-2	1	36	22	50	36	..	..	..	30	17	....	....	12	..	..	15	no	no	yes	no	1-4	1	6
....	14	2	28	6-7	1	19	32	41	34	24	8	5	37	18	14	11	34	6	2	21	yes	yes	yes	no	1-15	4	7
....	6	1	10	1-12	..	21	45	52	44	5	..	..	5	18	14	11	..	..	..	..	no	no	no	no	1-12	..	8
....	....	....	....	....	..	..	..	..	..	..	..	..	..	....	....	....	..	..	..	..	....	....	....	....	.....	..	9
....	4	1	10	1-3	..	29	37	47	38	22	17	3	42	19.3	14.3	9.4	24	..	..	4	no	no	no	no	.....	2	10
.2	5	1	10	1-3	1	31	43	47	42	38	15	6	59	17	14	9.5	22	..	..	18	yes	no	yes	yes	1-4	1	11
....	3	1	5	1-10	..	29	35	45	39	7	5	..	12	....	12	11	..	..	..	..	no	no	no	no	.....	1	12
.2	3	1	8	1-3	..	36	31	46	38	46	11	3	60	18.5	14	10.3	24	..	..	11	no	no	no	no	1-5	1	13
....	3	1	6	1-12	..	16	45	53	40	7	2	2	11	18	15	10	8	..	..	..	no	no	yes	no	1-3	1	14
.2	5	1	9	1-2	..	15	23	46	31	..	..	..	....	18	....	....	20	..	12	..	no	no	no	no	1-10	1	15
....	5	1	9	1-6	..	26	41	40	38	13	2	1	16	18	15.6	11	18	..	..	..	no	no	no	no	1-12	1	16
.4	11	2	21	3-4	1	24	44	38	35	32	35	7	74	18.5	15	10.5	71	11	..	37	yes	no	no	no	1-6	1	17
.2	6	2	9	1-3	1	22	67	24	32	34	4	..	38	....	....	....	35	..	..	15	yes	yes	no	no	1-3	1	18
2	2	6	5	1-7	1	27	25	39	30	26	1	2	29	18	....	....	10	..	..	25	yes	no	no	no	1-4	1	19
....	3	1	7	1-5	..	16	44	60	43	10	2	..	12	16	....	....	14	..	..	9	yes	no	yes	no	1-3	1	20
.2	2	1	8	1-2	..	19	37	36	27	29	..	3	32	....	....	....	28	..	..	20	no	yes	yes	no	1-2	1	21
.1	3	2	10	1-4	..	12	24	42	25	14	11	1	26	18	12	10	11	..	..	4	no	no	no	no	1-5	1	22
....	2	1	6	1-5	..	28	48	72	46	40	13	2	55	18	13	12	39	..	..	12	no	no	yes	yes	1-5	1	23
.3	9	2	16	3-5	1	28	37	45	39	44	8	6	58	18	....	....	42	..	..	18	yes	yes	yes	yes	1-4	2	24
....	4	2	6	1-6	..	29	53	30	47	12	7	13	32	19	14	9	10	..	..	..	no	.....	.....	.....	1-8	1	25
....	....	....	....	....	..	..	..	..	..	..	..	..	..	....	....	....	..	..	..	..	....	....	....	....	.....	..	26
....	6	1	9	1-4	..	36	47	50	48	1	2	..	3	....	....	....	..	..	..	..	yes	yes	yes	yes	1-4	1	27
....	....	....	....	....	..	..	..	..	..	..	..	..	..	....	....	....	..	..	..	..	....	....	....	....	.....	..	28
.2	5	1	10	1-3	..	14	27	45	33	..	..	..	..	....	....	....	4	..	..	7	....	....	....	....	.....	..	29
....	2	1	3	1-15	..	..	29	49	39	..	2	1	3	....	14	8	..	..	..	..	no	no	no	no	1-4	1	30
....	....	2	8	....	..	22	39	44	36	12	..	..	12	18	14	11	..	..	..	3	no	yes	yes	yes	.....	..	31
.1	6	2	11	1-4	..	25	35	32	31	18	5	2	25	18	14	9	34	..	..	24	yes	yes	yes	no	1-6	1	32
....	....	....	....	....	..	..	..	..	..	..	..	..	..	....	....	....	..	..	..	..	....	....	....	....	.....	..	33
....	1	1	1	....	..	..	41	80	60	..	..	..	....	....	....	....	..	..	..	..	yes	yes	yes	no	1-5	1	34
1.1	4	2	8	1-4	..	19	31	37	31	1	..	1	2	19	14	10	8	..	..	4	.....	.....	.....	no	1-6	1	35
....	2	1	6	1-10	..	27	38	59	41	9	1	..	10	16	13	9	..	..	..	..	no	no	no	yes	1-10	1	36
.2	4	1	7	1-2	..	16	29	53	38	2	..	..	2	....	....	....	9	..	..	..	no	no	no	no	.....	1	37
....	2	1	5	1-12	..	26	38	58	40	44	1	2	47	18	....	....	..	..	..	..	no	no	yes	no	1-3	1	38
....	7	3	13	4-7	3	21	42	46	37	10	6	1	17	19	14	10.6	20	..	..	12	yes	yes	yes	no	1-5	4	39
.3	9	2	14	2-3	..	31	39	40	37	35	8	2	45	18	14	11	30	..	..	20	no	yes	yes	no	.....	4	40
....	2	1	4	.....	..	30	38	59	45	10	4	..	14	17	....	....	..	..	..	..	no	no	no	no	1-4	1	41
....	2	1	5	1-12	..	30	49	70	50	..	..	..	33	18	....	....	..	..	..	..	no	.....	.....	yes	1-4	1	42
....	9	1	17	1-3	..	39	40	35	38	55	7	3	65	18.5	....	....	45	..	..	30	no	no	no	no	1-3	2	43
.4	8	3	17	3-4	1	36	36	38	37	48	8	6	62	19.2	15.1	10.6	73	..	..	21	yes	no	no	no	1-12	3	44
.4	17.5	2	27	5-6	1	27	44	48	43	..	..	..	16	18.5	14.6	10.5	35	..	..	..	yes	yes	yes	yes	.....	5	45
.1	3	1	7	1-4	..	22	51	41	36	18	7	6	31	18	14	10.5	26	..	..	6	no	yes	yes	no	.....	1	46
....	3	1	7	1-12	..	30	42	43	34	23	6	2	31	....	....	....	12	..	..	..	no	no	no	no	1-18	1	47
1.2	7	4	11	1-2	..	14	26	32	27	2	..	1	3	17.3	15	11	16	..	..	12	no	no	no	no	1-4	1	48
....	3	1	6	.....	1	28	43	42	38	28	..	..	28	17	....	....	6	..	..	..	yes	no	no	no	1-2	1	49
.2	6.5	2	14	3-7	1	28	38	33	33	87	11	4	102	18.7	14.1	9.8	81	11	..	42	yes	yes	yes	no	1-3	3	50
.1	5	1	9	1-4	1	28	54	24	36	62	15	7	84	19	....	....	31	..	..	10	yes	yes	yes	yes	1-4	1	51
.2	3	1	7	2-5	..	23	45	50	41	16	6	3	25	17.5	14.7	11.8	10	..	..	15	no	no	no	no	1-3	1	52
....	2	1	5	1-12	..	15	36	82	45	..	..	..	..	18	....	....	4	..	..	..	no	yes	yes	yes	1-6	..	53
.1	5	2	10	1-4	..	41	33	47	40	25	7	6	38	18	14	10	24	..	..	22	no	no	no	yes	1-2	1	54
....	2	1	5.5	1-8	5	29	39	52	39	21	4	5	30	18	14	10	15	..	..	10	yes	yes	yes	no	1-10	1	55
....	....	....	....	....	..	..	..	..	..	..	..	..	..	....	....	....	..	..	..	..	....	....	....	....	.....	..	56
.1	15	1	23	1-3	..	24	31	37	34	..	..	..	..	18	15	11	73	..	13	15	no	yes	yes	no	1-10	3	57
....	..	1	5	1-4	..	37	38	46	43	..	..	..	20	16	....	....	..	..	..	..	....	....	....	yes	1-4	1	58
1	8	4	16	.....	3	24	37	24	27	27	6	2	35	19	14	10	40	6	..	40	yes	yes	yes	yes	.....	3	59
....	2	1	5	.....	..	28	47	47	41	29	8	..	37	17.7	14	10	18	..	..	31	.....	.....	yes	no	1-3	1	60

TABLE XVII.—

Line number.	Cities having a population between 1,000 and 4,000, census of 1890.	School population from inspectors' report.	Enrollment.				Average number belonging.				Average daily attendance.				No. of teachers			
			High school department.	Grammar department.	Primary department.	Whole school.	High school department.	Grammar department.	Primary department.	Whole school.	High school department.	Grammar department.	Primary department.	Whole school.	H. S. dept.		Gram. dept.	
															M.	F.	M.	F.
61	Lowell	690	70	201	280	551	58	162	214	434	55	149	191	395	1.7	1	1.2	2.5
62	Luther	345	59	105	151	315	46	93	135	274	43	79	91	213	1	1	----	2
63	Mancelona	542	47	157	361	565	34	94	342	470	29	74	179	282	1	1	----	2
64	Manchester	406	79	123	194	396	68	104	161	333	67	101	153	321	1	1.5	----	2.5
65	Manistique	960	43	181	642	866	35	155	415	605	33	84	360	477	.5	2	.3	4
66	Marine City	1,229	34	196	421	651	25	131	263	419	25	120	250	395	.5	1.5	.3	2.5
67	Marshall	1,253	126	302	400	828	105	257	315	677	99	248	303	650	2.5	2	.3	6
68	Mason	462	113	144	222	479	90	115	148	353	88	111	134	333	.5	1.5	.3	3
69	Michigamme	303	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
70	Midland	701	71	211	421	703	56	169	249	474	50	156	229	435	.8	1	.1	4
71	Milford	353	86	111	112	309	81	64	122	267	81	74	112	267	2	1	2	----
72	Montague	456	48	101	228	377	28	88	183	299	24	83	170	277	1	1	----	2
73	Morenci	292	55	87	115	257	55	81	98	234	48	76	85	209	1	1	----	2
74	Mt. Pleasant	1,024	90	211	398	699	81	200	365	625	76	185	325	586	.6	2	.2	6
75	Nashville	335	115	120	135	370	112	110	105	327	111	108	102	321	2	1	----	2
76	Newaygo	412	63	88	176	327	58	83	169	310	43	36	48	127	.7	1	.2	2
77	Newberry	444	50	55	268	373	48	58	250	356	40	50	224	314	1	----	----	2
78	North Muskegon	239	25	99	120	244	20	69	84	173	18	62	70	150	1	----	----	2
79	Northville	429	49	124	238	411	46	120	174	340	42	114	162	318	1	1	----	2
80	Norway	932	45	156	530	731	39	121	341	501	36	112	312	460	.8	2	.1	2
81	Ontonagon	647	28	83	280	391	21	78	261	360	20	76	250	346	1	1	----	2
82	Oscoda	663	20	119	354	493	18	103	222	343	18	97	185	300	----	2	----	2
83	Otsego	571	78	175	253	506	54	119	225	398	52	115	181	348	1	1	----	3
84	Ovid	363	48	124	194	366	38	102	151	291	35	93	135	263	.8	1	.1	2
85	Oxford	312	80	107	103	290	65	90	76	231	60	83	71	214	.8	2	.1	2
86	Palmer	221	----	26	60	86	----	26	59	85	----	23	46	69	----	----	1	----
87	Paw Paw	334	101	101	173	375	75	86	127	288	75	80	117	267	1	2	1	2
88	Pentwater	425	61	133	159	353	53	111	119	283	48	98	107	253	.8	1	.1	2
89	Petoskey	1,249	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
90	Plainwell	386	71	130	206	407	63	116	135	314	53	111	118	282	.8	1	1.1	2
91	Plymouth	400	51	103	190	344	45	94	167	306	36	81	132	249	1	2.2	----	2.8
92	Portland	502	109	176	211	496	88	151	162	401	83	128	149	360	.8	2	1.1	3
93	Quincy No. 2	273	83	82	127	292	72	68	112	252	70	60	106	236	1	2.5	----	2
94	Reed City	717	85	182	391	658	68	146	283	497	63	136	257	456	.6	2	.2	4
95	Republic	763	38	270	328	636	30	200	301	531	27	164	235	426	----	----	----	----
96	Richmond	222	54	49	105	208	44	50	82	176	42	47	76	165	.8	----	.1	1.4
97	Romeo	474	64	280	269	613	61	153	139	353	56	146	137	339	1	2	----	2.5
98	Sand Beach	451	26	96	243	365	25	85	200	310	24	76	166	266	.7	1	.2	2
99	South Haven	700	100	199	353	652	83	154	258	495	81	153	239	473	.7	2	.2	4
100	Spring Lake	386	64	51	187	302	49	41	123	213	45	37	112	194	.7	1	.2	1
101	St. Clair	921	92	178	395	665	77	160	372	609	73	149	337	559	.5	2	.3	3.5
102	St. Ignace	705	43	158	392	593	40	131	271	442	34	121	257	412	.8	2	.1	2
103	St. Johns	898	92	295	472	859	80	263	342	685	79	249	330	658	.4	3	.3	6
104	St. Joseph	1,287	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
105	St. Louis	639	86	212	366	664	74	166	246	486	69	155	229	453	.7	2	.2	4
106	Stanton	437	50	129	261	440	44	125	172	341	40	103	169	312	.8	1	.1	3.5
107	Sturgis	729	95	241	308	644	77	188	210	475	74	167	200	441	.5	2	.3	6
108	Tawas City	512	50	125	175	350	40	110	135	285	40	110	120	270	1	1	----	2
109	Tecumseh	531	128	173	236	537	103	162	186	451	102	151	181	434	.5	3	.3	4
110	Three Rivers	839	134	227	399	760	104	211	328	643	101	202	319	622	2.5	2	1.3	5
111	Union City	404	125	120	122	367	94	118	116	328	92	110	112	314	1	3	----	2
112	Vassar	603	115	162	212	489	81	131	164	376	77	122	155	354	.8	2	1.1	2
113	Wayne	378	----	----	----	----	35	96	153	284	----	----	----	----	----	----	----	----
114	West Branch	461	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
115	Whitehall	571	70	146	a333	549	60	128	a233	421	56	121	a223	400	1	1	----	3
116	Williamston	369	49	86	174	309	47	82	171	300	44	84	165	293	1	1	1	1
117	Wyandotte	1,519	60	190	571	821	45	170	414	629	44	166	390	590	.8	1	.1	3.5
118	Opechee	1,264	51	204	432	687	46	190	314	550	42	156	240	438	2	----	1	5

a Includes kindergarten department.

CONCLUDED.

regular employed.						Av. No. of pupils to each teacher.				No. of non-resident pupils.				Average age of class.			Number studying				Does school give special instruction in—						
Prim. dept.		Whole school.		Portion of superintendent's time devoted to supervision.	No. of special teachers.																						
M.	F.	M.	F.			H. S. dept.	Gram. dept.	Prim. dept.	Whole school.	H. S. dept.	Gram. dept.	Prim. dept.	Whole school.	Graduated.	Promoted to high school.	Promoted to gram. dept.	Latin.	Greek.	French.	German.	Vocal music?	Drawing?	Penmanship?	Has school kindergarten below primary grade?	Portion of time in first primary devoted to kindergarten work.	No. of U. S. flags.	Line number.
.1	5.5	2	9	1-3	..	29	46	39	39	20	7	..	27	17	....	....	10	..	..	5	yes	no	no	no	1-4	3	61
....	2	1	5	.....	..	23	46	68	46	..	..	..	..	15.5	12.8	8.5	1	..	..	..	yes	yes	yes	no	1-4	1	62
....	5	1	8	1-6	..	17	47	68	52	6	5	..	11	15	12	8	..	..	..	..	no	yes	yes	no	1-3	1	63
....	3	1	7	1-8	..	27	41	53	42	33	2	1	36	17.5	14.5	10.3	12	..	..	14	no	no	no	no	.....	1	64
.2	9	1	15	1-2	..	14	37	45	38	7	..	2	9	18	13.5	10.3	5	..	..	6	no	yes	yes	no	1-2	3	65
.2	8	1	13	1-2	..	13	60	33	30	4	1	..	5	19	15	10	12	..	..	5	.....	.....	.....	no	1-2	3	66
.2	10	3	18	1-2	1	23	43	32	33	29	4	..	33	17.5	14	11	86	3	11	28	yes	no	no	no	1-4	2	67
.2	4.5	1	9	1-2	..	45	38	29	35	..	..	..	80	....	....	....	47	..	..	23	no	no	yes	no	1-3	2	68
....	....	....	....	.....	..	..	..	..	..	..	..	..	..	....	....	....	..	..	..	..	.....	.....	.....	....	.....	..	69
.1	6	1	11	1-4	..	28	42	41	39	4	13	5	22	19	15	11	7	..	..	..	no	no	no	no	.....	2	70
3	....	6	1	1-8	1	27	32	41	33	29	3	..	32	17	12	9.5	5	..	..	..	no	no	no	no	.....	1	71
....	4	1	7	1-6	1	14	44	45	37	..	..	..	..	....	....	....	4	..	..	..	yes	no	no	yes	2-3	1	72
....	3	1	6	1-8	..	27	40	32	33	10	7	2	19	17	13	9	13	..	..	8	no	no	no	no	1-4	1	73
.2	8	1	16	4-9	..	31	33	46	37	15	5	..	20	19	14.5	10	20	..	..	15	no	no	no	no	1-5	3	74
....	3	2	6	1-9	..	37	55	35	41	52	8	2	62	17	13	9	27	..	..	15	no	no	no	no	3-10	1	75
.1	3	1	6	1-3	..	29	41	57	45	..	..	..	..	....	....	....	2	..	..	..	no	no	no	yes	1-2	1	76
....	4	1	6	1-12	..	48	14	63	39	2	2	3	7	18	13	7	..	..	..	..	no	no	yes	no	.....	3	77
....	2	1	4	.....	..	21	35	42	35	..	..	..	..	16	13	9	..	..	..	..	no	no	yes	no	.....	..	78
....	4	1	7	1-9	..	23	60	43	42	17	5	3	25	18	29	11	16	..	..	9	no	no	no	no	.....	1	79
.1	4	1	8	1-5	..	13	61	85	56	4	..	..	4	18	15	10.9	14	..	..	13	no	no	no	no	1-3	1	80
....	6	1	9	1-10	..	11	39	44	36	..	..	..	..	17	13	10	..	..	..	10	no	no	no	no	.....	2	81
....	5	....	9	1-6	..	9	51	44	38	..	..	..	..	17	....	....	..	..	..	..	no	no	no	no	1-4	3	82
....	5	1	10	1-6	1	27	38	45	36	18	2	..	20	18	12	8	15	..	..	..	yes	no	no	no	1-4	1	83
.1	4	1	7	1-5	..	19	51	38	36	25	7	2	34	....	....	....	5	..	..	..	no	no	no	....	.....	1	84
.1	2	1	6	1-4	..	22	45	38	33	28	2	1	31	17	12	8	6	..	..	..	no	no	no	....	1-6	..	85
....	1	1	1	.....	..	..	26	59	43	..	..	..	..	....	14	11	..	..	..	..	no	yes	yes	no	2-5	1	86
....	2	2	6	5-18	..	25	26	63	36	34	17	1	52	18	14	....	33	4	..	16	no	no	yes	no	1-18	1	87
.1	3	1	6	1-4	..	27	56	40	40	6	5	..	11	16.7	....	....	29	..	..	10	no	no	no	no	1-4	1	88
....	....	....	....	.....	..	..	..	..	..	..	..	..	..	....	....	....	..	..	..	..	.....	.....	.....	....	.....	..	89
.1	3	2	6	1-4	1	32	39	45	39	32	9	3	44	19	....	....	24	..	..	12	yes	yes	yes	no	1-6	1	90
....	3	1	7	1-8	..	20	34	55	38	18	6	..	24	19	14	11	19	..	..	7	no	no	no	no	.....	1	91
.1	5	2	10	1-4	..	29	38	32	33	27	1	..	28	....	....	....	25	..	..	12	.....	.....	.....	yes	1-3	..	92
....	2.5	1	7	1-8	..	36	34	37	32	33	4	3	40	....	....	....	45	..	..	32	.....	yes	yes	no	.....	1	93
.2	7	1	13	2-5	..	23	37	40	36	..	3	3	6	17.5	....	....	40	..	..	25	no	yes	yes	yes	2-3	2	94
....	....	1	10	1-2	..	15	40	50	48	..	..	..	..	18	14	10	7	..	..	..	yes	yes	yes	....	1-5	1	95
.1	1.6	1	3	1-4	..	44	38	49	44	31	2	1	34	17.3	13.1	8.2	21	..	..	..	yes	yes	yes	no	1-4	1	96
....	3	1	7.5	.....	..	21	61	46	41	..	..	..	20	18	13	8	57	6	..	36	no	no	no	no	1-4	1	97
.1	4	1	7	1-3	..	12	43	50	38	7	2	..	9	17	....	....	8	..	..	..	no	no	no	yes	1-6	1	98
.1	5	1	11	1-3	..	31	39	52	41	42	21	4	67	18	13.7	8.6	6	..	..	..	no	yes	yes	no	1-3	1	99
.1	3	1	5	1-3	..	29	37	38	35	..	..	..	..	17	13	9	..	..	..	..	no	no	no	no	1-3	2	100
.2	7.5	1	13	1-2	1	30	43	49	36	8	4	3	15	19	13	9	49	..	11	10	yes	no	no	no	1-6	4	101
.1	5	1	9	1-5	..	20	65	54	44	3	2	..	5	17	13	10	18	..	..	..	no	no	no	no	1-10	1	102
.3	9	1	18	4-7	1	24	44	38	36	27	18	4	49	20	15	10.8	34	..	..	30	yes	yes	no	no	1-10	3	103
....	....	....	....	.....	..	..	..	..	..	..	..	..	..	....	....	....	..	..	..	..	.....	.....	.....	....	.....	..	104
.1	5	1	11	1-3	..	25	42	49	40	22	6	..	28	17.7	13.9	10.8	29	..	..	16	no	no	no	no	.....	2	105
.1	4.5	1	9	1-6	..	22	38	38	34	11	5	..	16	20	15	12	15	..	..	6	no	yes	yes	yes	.....	2	106
.2	6	1	14	1-2	1	31	29	34	32	20	13	5	38	18.5	....	....	..	..	..	18	yes	.....	.....	no	1-3	1	107
....	2	1	5	1-6	..	20	55	67	48	..	..	..	16	16	11	7	..	..	..	..	no	no	no	no	.....	2	108
.2	6	1	13	1-2	2	29	40	31	32	36	5	3	44	18.5	14.5	10.5	51	..	..	29	yes	no	yes	yes	1-3	2	109
.2	9	4	16	1-2	1	20	35	36	32	9	2	1	12	17.4	....	....	33	3	3	26	yes	no	no	no	1-6	2	110
....	4	1	9	1-9	..	24	59	29	38	36	6	3	45	....	....	....	17	1	..	6	no	no	no	yes	2-3	1	111
.1	4	2	8	1-6	1	29	43	41	37	30	9	1	40	17.5	13.7	9.2	25	..	..	..	yes	yes	no	yes	1-3	2	112
....	....	....	....	.....	..	..	..	..	..	..	..	..	..	....	....	....	..	..	..	..	.....	.....	.....	....	.....	..	113
....	....	....	....	.....	..	..	..	..	..	..	..	..	..	....	....	....	..	..	..	..	.....	.....	.....	....	.....	..	114
....	5	1	9	1-12	1	30	42	44	42	6	2	2	10	19	....	....	12	..	..	..	no	no	no	yes	.....	1	115
....	4	2	6	.....	..	24	41	43	37	9	5	5	19	18	....	....	10	..	..	8	no	no	no	no	1-4	2	116
.1	7.5	1	12	1-3	1	30	46	55	49	4	4	1	9	18.5	14	10	16	..	..	..	yes	no	no	yes	2-5	2	117
....	8	3	13	.....	1	23	32	34	39	..	..	..	..	14	12	8	..	..	..	..	yes	no	no	no	.....	3	118

*TABLE XVIII.

Financial statistics of city schools as reported by superintendents for the year 1894-95.

Cities having population over 4,000, census 1890.	Amount paid superintendent.	Amount paid regular teachers.	Amount paid special teachers.	Total amount paid for instruction.	Cost of education per capita in— High school for— Instruction.	High school for— Incidentals.	High school for— Total.	Grammar department for— Instruction.	Grammar department for— Incidentals.	Grammar department for— Total.	Primary department for— Instruction.	Primary department for— Incidentals.	Primary department for— Total.	Whole school for— Instruction.	Whole school for— Incidentals.	Whole school for— Total.
Adrian	$1,800 00	$13,299 50	$1,675 00	$16,774 50	$23 81	$4 91	$28 72	$14 52	$4 91	$19 43	$7 48	$4 91	$12 39	$12 56	$4 91	$17 47
Alpena	1,500 00	15,756 00	.....	17,256 00	24 46	3 62	28 08	11 50	3 62	15 12	10 15	3 62	13 77	11 94	3 62	15 56
Ann Arbor	2,500 00	28,603 10	1,350 00	32,453 10	28 72	4 94	*33 66	13 62	4 94	18 56	9 98	4 94	14 92	16 36	4 94	21 30
Au Sable	850 00	3,275 00	.....	4,125 00	30 48	3 22	33 70	9 76	3 22	12 98	7 61	3 22	10 83	8 56	3 22	11 78
Battle Creek	1,800 00	27,623 00	1,250 00	30,673 00	22 93	5 64	28 57	13 47	5 64	19 11	10 71	5 64	16 62	13 22	5 64	18 86
Bay City	2,000 00	45,228 51	2,059 00	49,287 51	30 43	5 45	35 88	13 42	5 45	18 87	11 63	5 45	17 08	13 83	5 45	19 28
Big Rapids	1,500 00	10,764 12	500 00	12,764 12	20 53	1 89	22 42	14 12	1 89	16 01	14 05	1 89	15 94	14 77	1 89	16 66
Cadillac	1,500 00	12,395 00	700 00	14,595 00	30 77	5 14	35 91	17 43	5 14	22 57	10 36	5 14	15 50	12 90	5 14	16 60
Calumet	2,500 00	26,290 15	1,600 00	30,390 15	.....	.....	.....	.....	.....	.....	.....	.....	.....	10 58	4 13	14 71
Cheboygan	1,100 00	8,504 50	.....	9,604 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	11 61	3 95	15 56
Coldwater	1,800 00	10,534 00	1,025 00	13,359 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	15 66	6 04	21 70
Detroit	4,000 00	440,149 44	10,222 50	454,371 94	31 77	8 49	40 26	21 36	8 49	29 85	14 01	8 49	22 50	17 04	8 49	25 53
Escanaba	1,600 00	9,850 00	1,200 00	12,650 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	15 66	3 71	19 37
Flint	1,500 00	18,726 15	1,066 25	21,292 40	.....	.....	.....	.....	.....	.....	.....	.....	.....	11 03	3 81	14 84
Grand Haven	1,400 00	10,480 00	800 00	12,680 00	22 25	3 37	25 62	11 52	3 37	14 89	11 97	3 37	15 34	11 89	3 37	15 26
Grand Rapids	3,000 00	174,178 35	3,200 00	180,378 35	30 19	4 19	34 38	16 65	4 19	20 84	13 48	4 19	17 67	15 69	4 19	19 88
Ionia	1,300 00	10,550 89	450 00	12,300 89	23 59	4 19	27 78	14 65	4 19	18 84	10 73	4 19	14 92	13 75	4 19	17 94
Iron Mountain	1,500 00	13,820 37	.....	15,320 37	.....	.....	.....	.....	.....	.....	.....	.....	.....	10 85	10 77	21 62
Ironwood	1,650 00	12,300 00	550 00	14,500 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	10 93	7 93	18 86
Ishpeming	1,600 00	15,416 75	650 00	17,666 75	16 16	5 85	22 01	.....	.....	.....	.....	.....	.....	10 44	5 85	16 29
Jackson No. 1	1,750 00	25,426 58	1,200 00	28,376 58	27 40	1 83	29 23	17 50	1 83	19 33	15 30	1 83	17 13	20 00	1 83	21 83
Jackson No. 17	1,500 00	13,664 75	850 00	16,014 75	24 26	5 58	29 84	13 76	5 58	17 34	11 66	5 58	16 24	13 35	5 58	18 93
Kalamazoo	2,000 00	35,785 15	800 00	37,785 15	30 00	9 27	39 27	10 23	9 27	19 50	12 25	9 27	21 52	13 23	9 27	22 50
Lansing	1,700 00	29,763 25	500 00	31,963 25	28 80	5 71	34 51	12 83	5 71	18 54	10 97	5 71	16 68	12 92	5 71	18 63
Ludington	1,300 00	19,355 30	750 00	21,405 30	27 50	4 01	31 51	12 80	4 01	16 81	11 75	4 01	15 76	14 77	4 01	18 78
Manistee	1,700 00	26,325 92	834 25	28,860 17	37 90	4 54	42 44	15 41	4 54	19 95	11 35	4 54	15 89	14 80	4 54	19 34
Marquette	1,500 00	15,145 00	600 00	17,245 00	30 19	6 24	36 43	16 07	6 24	22 31	8 86	6 24	15 10	10 95	6 24	17 19
Menominee	1,630 00	22,463 27	1,200 38	25,293 65	29 00	8 09	37 09	10 00	8 09	18 09	.....	.....	.....	13 05	8 09	21 14
Monroe	1,150 00	6,100 00	.....	7,250 00	32 62	4 06	36 68	9 62	4 06	13 68	7 59	4 06	11 65	12 95	4 06	17 01
Mt. Clemens	1,300 00	9,065 75	.....	10,365 75	.....	.....	.....	.....	.....	.....	.....	.....	.....	13 22	6 03	9 25
Muskegon	2,000 00	39,301 58	1,374 00	42,675 58	30 62	7 43	38 05	12 74	7 43	20 17	8 88	7 43	16 31	11 22	7 43	18 65
Negaunee	1,700 00	10,769 50	.....	12,469 50	35 56	10 09	45 65	12 16	10 09	22 15	10 88	10 09	20 97	12 98	10 09	23 07
Niles	1,600 00	8,206 20	250 00	10,056 20	19 23	4 11	23 34	11 07	4 11	15 18	9 62	4 11	13 73	12 61	4 11	16 72
Owosso	1,700 00	15,350 00	.....	17,050 00	26 67	5 13	31 80	12 50	5 13	17 63	9 79	5 13	14 92	10 78	5 13	15 91

Pontiac	1,500 00	11,190 00	500 00	13,190 00	24 21	7 28	31 49	13 05	7 28	20 33	9 47	7 28	17 75	12 62	7 28	19 90
Port Huron	1,500 00	27,797 59		29,297 59	19 73	5 10	24 83	10 86	5 10	15 96	8 98	5 10	14 03	10 98	5 10	16 08
Saginaw, E. S	2,600 00	62,929 56	2,812 50	68,342 06	33 88	8 52	42 40	19 60	8 52	28 12	10 90	8 52	19 42	21 46	8 52	29 98
Saginaw, W. S.	2,100 00	33,538 55	2,100 00	37,738 55										12 43	4 55	16 98
Sault Ste. Marie	1,500 00	10,785 00	350 00	12,585 00	24 58	5 80	30 38	11 55	5 80	17 35	9 12	5 80	14 92	12 11	5 80	17 91
Traverse City	1,800 00	13,652 24	765 00	16,217 24										13 38	6 14	19 52
West Bay City	1,400 00	26,836 65	1,350 00	29,586 65	24 92	7 10	35 02	22 34	7 10	29 44	9 56	7 10	16 66	15 91	7 10	23 01
Ypsilanti	1,500 00	9,889 80		11,389 80	21 04	5 95	26 99	14 63	5 95	20 58	14 63	5 95	20 58	15 75	5 95	21 70
Cities having a population between 1,000 and 4,000, census of 1890.																
Albion	1,300 00	7,873 75	322 00	9,495 75	19 44	9 68	29 12	11 67	9 68	21 35	8 76	9 68	18 44	10 42	9 68	20 10
Algonac	720 00	1,155 00		1,875 00										12 93	4 30	17 23
Allegan	1,100 00	5,592 00	250 00	6,942 00	27 12	4 20	31 32	11 60	4 20	15 80	8 35	4 20	12 55	12 09	4 20	16 29
Alma	900 00	3,085 00	250 00	4,185 00	18 93	4 09	23 12	10 28	4 09	14 37	9 23	4 09	13 32	11 38	4 09	15 47
Atlantic Mine	1,200 00	2,376 00		3,576 00										12 08	3 60	15 68
Belding	1,000 00	4,000 00	330 00	5,330 00										9 90	6 65	16 55
Benton Harbor	1,583 30	9,645 00	450 00	11,678 30	21 21	5 47	26 68	12 48	5 47	17 95	10 18	5 47	15 65	11 48	5 47	16 95
Bessemer	1,200 00	4,408 75		5,608 75	2 90	17 84	21 74	3 59	17 84	21 43	3 36	17 84	21 20	11 57	17 84	29 41
Blissfield																
Buchanan	1,000 00	3,657 50		4,657 50										11 03	2 86	13 89
Caro	900 00	3,725 00	400 00	5,025 00										11 04	5 19	16 23
Carrollton No. 1	723 75	1,250 00		1,973 75										8 05	2 64	10 69
Cassopolis	1,000 00	2,939 62		3,939 62										11 69	4 13	15 82
Cedar Springs	800 00	2,204 00		3,004 00	14 72	2 80	17 52	10 76	2 80	13 56	9 71	2 80	12 51	10 61	2 80	13 41
Champion	1,620 00	4,600 43		6,220 43										14 46	5 42	19 88
Charlevoix	900 00	2,873 30		3,773 30										10 06	7 08	17 14
Charlotte	1,250 00	10,003 97	200 00	11,453 97	27 24	5 13	32 37	11 45	5 13	16 58	12 16	5 13	17 29	14 18	5 13	19 31
Chelsea	800 00	3,360 00	109 00	4,269 00										9 86	6 60	16 46
Chesaning	750 00	2,220 00	145 00	3,215 00	16 91	3 05	19 96	9 77	3 05	12 82	7 60	3 05	10 65	11 50	3 05	14 55
Clare	850 00	2,179 00		3,029 00										8 78	2 98	11 76
Constantine	900 00	2,461 25		3,361 25										15 34	20 44	35 78
Corunna	1,000 00	3,098 00		4,098 00	36 09	4 01	40 10	11 24	4 01	15 25	8 28	4 01	12 29	13 94	4 01	17 95
Decatur	1,000 00	2,180 00		3,180 00	13 46	3 37	16 83	6 43	3 37	9 80	10 10	3 37	13 47	9 88	3 37	13 25
Dowagiac	1,500 00	7,495 25	250 00	9,245 25	16 20	3 25	19 45	11 03	3 25	14 28	8 00	3 25	11 25	13 17	3 25	16 42
Dundee	900 00	2,100 00		3,000 00										10 57	1 76	12 33
East Lake																
East Tawas	1,100 00	3,420 00		4,520 00	35 55	1 91	37 46							9 49	1 91	11 40
Eaton Rapids																
Elk Rapids	1,000 00	3,925 00		4,925 00										11 19	6 42	17 61
Essexville	700 00	1,200 00		1,900 00				19 00	5 18	24 18	8 00	5 18	13 18	13 50	5 18	18 68
Evart	1,000 00	3,350 00		4,350 00	11 19	2 85	14 04							12 15	2 85	15 00
Fenton	1,100 00	4,775 00		5,875 00										11 16	6 25	17 41
Fowlerville																
Ford River	500 00	500 00		1,000 00										8 26	2 79	11 05
Frankfort	1,000 00	2,775 00		3,775 00	29 18	3 15	32 33	15 36	3 15	18 51	12 88	3 15	16 03	14 20	3 15	17 35

* Where a blank occurs in this table the item was not reported.

*TABLE XVIII.—Concluded.

Cities having a population between 1,000 and 4,000, census of 1890.	Amount paid superintendent.	Amount paid regular teachers.	Amount paid special teachers.	Total amount paid for instruction.	Cost of education per capita in— High school for— Instruction.	High school for— Incidentals.	High school for— Total.	Grammar department for— Instruction.	Grammar department for— Incidentals.	Grammar department for— Total.	Primary department for— Instruction.	Primary department for— Incidentals.	Primary department for— Total.	Whole school for— Instruction.	Whole school for— Incidentals.	Whole school for— Total.
Fremont	$800 00	$2,100 00		$2,900 00	$18 15	$2 97	$21 12	$9 85	$2 97	$12 82	$6 44	$2 97	$9 41	$10 14	$2 97	$13 11
Gladstone	1,000 00	2,935 00		3,935 00	36 14	5 15	41 29	17 12	5 15	22 27	10 84	5 15	15 99	13 07	5 15	18 22
Grand Ledge No. 9	900 00	1,860 00		2,760 00										11 31	2 69	14 00
Greenville	1,400 00	6,022 50	$505 00	7,927 50	23 43	2 85	26 28	11 84	2 85	14 69	10 98	2 85	13 83	13 28	2 85	16 13
Hancock	1,800 00	6,974 00		8,774 00	28 94	10 76	39 70	14 79	10 76	25 55	11 76	10 76	22 52	14 65	10 76	25 41
Harbor Springs																
Hartford	765 00	1,624 00		2,389 00										8 01	2 19	10 20
Hastings	1,200 00	6,090 00		7,290 00										10 88	3 17	14 05
Hillsdale	1,350 00	6,782 35	380 00	8,512 35	13 57	5 46	19 03	11 22	5 46	16 68	10 96	5 46	16 42	11 59	5 46	17 05
Holland	1,500 00	8,877 00	525 00	10,902 00	18 42	4 66	23 08	8 35	4 66	13 01	7 72	4 66	12 38	8 65	4 66	13 31
Holly	1,000 00	2,450 00		3,450 00	26 15	3 36	29 51	7 43	3 36	10 79	8 82	3 36	12 18	11 85	3 36	15 21
Homer	650 00	1,970 00		2,620 00										9 12	1 91	11 03
Houghton No. 1	1,500 00	7,035 00		8,535 00										21 44	9 43	30 87
Howard City	800 00	1,923 75	54 00	2,777 75										10 32	1 89	12 21
Howell	1,000 00	5,350 00		6,350 00	16 20	3 86	20 06	10 01	3 86	13 87	10 32	3 86	14 18	12 18	3 86	16 04
Hudson	1,000 00	2,891 50	403 75	4,295 25										10 40	6 43	16 83
Imlay City	1,000 00	2,200 00		3,200 00	22 94	3 85	26 76	7 84	3 85	11 69	5 96	3 85	9 81	12 22	3 85	16 07
Iron River	1,000 00	3,440 00		4,440 00	12 54	7 46	20 00							16 57	7 46	24 03
Ithaca	1,100 00	3,560 00		4,660 00	17 65	2 62	20 27	8 77	2 62	11 39	7 40	2 62	10 02	9 75	2 62	12 37
Jonesville	1,000 00	1,960 00	400 00	3,380 00										14 20	4 99	19 19
Kalkaska																
Lake Linden	1,500 00	9,936 38		11,436 38	21 46	5 72	27 18	18 62	5 72	24 34	11 76	5 72	17 48	14 01	5 72	19 73
Lakeview	700 00	1,422 00		2,122 00										8 19	2 76	10 95
Lapeer	1,100 00	5,150 00	60 00	6,310 00	16 00	36	16 36	12 00	36	12 36	10 00	36	10 36	11 00	36	11 36
Leslie	950 00	1,800 00		2,750 00	24 11	84	24 95	7 44	84	8 28	7 44	84	8 28	11 27	84	12 11
Lowell	800 00	3,460 00		4,260 00	23 40	3 22	26 62	8 75	3 22	11 97	10 43	3 22	13 65	9 81	3 22	13 03
Luther	750 00	1,560 75		2,310 75										8 43	2 84	11 27
Mancelona	810 00	2,253 50		3,063 50										5 42	2 25	7 67
Manchester	950 00	2,200 00		3,150 00	20 40	3 60	24 00	8 30	3 60	11 90	5 30	3 60	8 90	9 45	3 60	13 05
Manistique	1,000 00	7,273 16		8,273 16	42 76	5 31	48 07	10 51	5 31	15 82	12 90	5 31	18 21	14 22	5 31	19 53
Marine City	950 00	3,697 50		4,647 50										11 09	6 58	17 67
Marshall	1,500 00	7,872 50	300 00	9,672 50	27 92	3 54	31 46	11 70	3 54	15 24	10 30	3 54	13 84	14 39	3 54	17 93
Mason	1,000 00	3,520 00		4,520 00										12 80	4 24	17 04
Michigamme																
Midland	900 00	3,900 00		4,800 00	21 00	5 07	26 07	9 11	5 07	14 18	8 97	5 07	14 04	10 12	5 07	15 19
Milford	950 00	2,050 00		3,000 00	20 74	2 14	22 88	8 12	2 14	10 26	6 06	2 14	8 20	11 23	2 14	13 37

Montague	900 00	2,450 38	200 00	3,550 38	9 29	4 96	14 27	8 73	4 96	13 71	9 48	4 96	14 46	8 52	4 96	13 50
Morenci	800 00	1,886 50		2,686 50										11 48	3 12	15 60
Mt. Pleasant	1,100 00	6,000 00		7,100 00										12 96	5 73	18 69
Nashville	900 00	2,080 00		2,980 00										9 11	2 05	11 16
Newaygo	900 00	2,200 00		3,100 00										10 00	2 35	12 35
Newberry	1,000 00	3,850 00		4,850 00										13 00	7 00	20 00
North Muskegon	495 00	890 00		1,385 00										5 80	1 73	7 53
Northville	1,100 00	2,445 00		3,545 00	32 00	2 14	34 14	5 85	2 14	7 99	5 40	2 14	7 54	14 42	2 14	16 56
Norway	1,300 00	3,742 15		5,042 15	29 51	4 03	33 54	10 03	4 08	14 06	7 87	4 08	11 90	10 06	4 03	14 09
Ontonagon	1,250 00	4,500 00		5,750 00	50 00	1 50	51 50	12 00	1 50	13 50	11 00	1 50	12 50	16 00	1 50	17 50
Opechee	1,000 00	6,987 50	155 63	8,143 13										14 80	9 88	24 68
Oscoda	800 00	2,515 00		3,315 00										9 66	2 65	12 31
Otsego	900 00	2,651 00		3,551 00										8 92	3 05	11 97
Ovid	1,000 00	2,450 00		3,450 00	20 60	3 88	24 48	10 20	3 88	14 08	10 30	3 88	14 18	13 70	3 88	17 58
Oxford	950 00	1,900 00		2,850 00	13 95	2 73	16 68	11 22	2 73	13 95	12 26	2 73	14 99	12 33	2 73	15 06
Palmer	700 00	500 00		1,200 00				26 92	7 70	34 62	8 47	7 70	16 17	14 12	7 70	21 81
Paw Paw	1,200 00	2,680 00		3,880 00										13 48	5 79	19 27
Pentwater	900 00	2,075 00		2,975 00	21 06	1 83	22 91	6 88	1 83	8 71	9 20	1 83	11 03	10 51	1 83	12 34
Petoskey																
Plainwell	900 00	2,245 40	125 00	3,270 40	16 00	3 62	19 62	9 90	3 62	13 52	7 65	3 62	11 27	10 40	3 62	14 02
Plymouth	1,100 00	2,475 00		3,575 00	39 48	3 45	42 93	22 75	3 45	26 20	11 21	3 45	14 66	11 35	3 45	14 80
Portland	900 00	3,750 00		4,650 00										9 37	3 53	12 90
Quincy No. 1	1,000 00	2,050 00		3,050 00	20 83	4 11	24 94	11 02	4 11	15 13	7 14	4 11	11 25	12 10	4 11	16 21
Reed City	1,000 00	4,548 75		5,548 75										11 16	1 76	12 92
Republic	1,260 00	4,775 00		6,035 00										11 93	5 10	17 03
Richmond	900 00	810 00		1,710 00	15 30	2 04	17 34	9 51	2 04	11 55	7 94	2 04	9 98	10 92	2 04	12 96
Romeo	1,500 00	2,625 00		4,125 00										11 60	4 08	15 68
Sand Beach	750 00	2,150 00		2,900 00	19 51	4 01	23 51	10 41	4 01	14 42	9 32	4 01	13 33	10 90	4 01	14 91
South Haven	1,000 00	3,445 00		4,445 00	19 30	2 76	22 06	8 07	2 76	10 83	6 19	2 76	8 95	8 98	2 76	11 74
Spring Lake	775 00	1,350 00		2,125 00	16 01	1 88	17 89	9 80	1 88	11 68	7 60	1 88	9 48	9 99	1 88	11 87
St. Clair	1,000 00	4,638 75	450 00	6,088 75	18 13	3 93	22 06	10 60	3 93	14 53	8 02	3 93	11 95	9 98	3 93	13 91
St. Ignace	850 00	3,420 00		4,270 00	11 42	5 32	16 74	10 62	5 32	15 94	8 93	5 32	14 25	9 66	5 32	14 98
St. Johns	1,100 00	7,029 90	390 00	8,519 90										12 43	4 90	17 33
St. Joseph																
St. Louis	1,000 00	3,675 00		4,675 00	15 65	11 86	27 51	9 84	11 86	21 70	7 65	11 86	19 51	9 64	11 86	21 50
Stanton	850 00	2,978 55		3,828 55	25 59	3 10	28 69	9 17	3 10	12 27	8 54	3 10	11 64	11 00	3 10	14 10
Sturgis	1,000 00	3,942 00	288 00	5,230 00										11 01	97	11 98
Tawas City	800 00	1,990 00		2,790 00										9 79	3 95	13 74
Tecumseh	1,200 00	4,463 76	355 00	6,018 76	22 03	4 32	26 35	10 08	4 32	14 40	11 38	4 32	15 70	13 34	4 32	17 66
Three Rivers	975 00	7,426 00	333 00	8,734 00										13 58	3 87	17 45
Union City	1,000 00	3,231 00		4,231 00										11 50	3 00	14 50
Vassar	1,000 00	2,980 00	360 00	4,340 00	19 67	72	20 39	10 57	72	11 29	8 31	72	9 03	11 54	72	12 26
Wayne																
West Branch																
Whitehall	950 00	2,952 50		3,902 50	22 00	2 65	24 65	7 00	2 65	9 65	7 10	2 65	9 75	9 27	2 65	11 92
Williamston	750 00	2,500 00		3,250 00	26 00	5 19	31 19	9 00	5 19	14 19	5 50	5 19	10 69	10 00	5 19	15 19
Wyandotte	1,050 00	4,715 00	200 00	5,965 00	23 40	4 66	28 06	8 33	4 66	12 99	6 82	4 66	11 48	9 48	4 66	14 14

* Where a blank occurs in this table the item was not reported.

TABLE

Special report of the superintendents of schools of

Line number.	Cities and villages having a population over 1,200, census of 1894.	No of teachers in schools, not including the superintendent and special teachers.	No. of special teachers employed.	Are all of regular teachers holders of legal certificates of qualification?	No. holding certificates granted or endorsed by the State Board of Education.	No. holding State Normal school certificates granted under the provisions of act 194, of the laws of 1889.	No. holding university certificates granted according to act No. 144, of the laws of 1891.	No. holding college certificates granted according to act No. 136, of the laws of 1893.	No. holding county first grade certificates.
1	Adrian	32	3	yes		2	3		
2	Albion	21	2	yes		7		2	
3	Allegan	17	1	yes	1	2	1		3
4	Alma	10	1	yes	1	1			3
5	Alpena	33	2	yes					
6	Ann Arbor	54	2	yes	1	1			
7	Au Sable	9		yes			1		1
8	Battle Creek	70	2	no	1	4	2	1	2
9	Bay City	102	5						
10	Belding	12	1	yes		1			
11	Bessemer	11		yes	1	5			
12	Benton Harbor	28	1	yes		10		1	2
13	Big Rapids	23	2	no		3	1		
14	Buchanan	10		yes		2			1
15	Cadillac	28	1	yes		12		8	
16	Calumet	59	3	yes		16	1	2	11
17	Caro	10	1	yes		2			2
18	Charlevoix	10		yes		2			2
19	Charlotte	22	1	no	2	6			
20	Cheboygan	22		yes	1	2			2
21	Chelsea	12	1	yes	3			3	2
22	Clare	9		no	1	1			
23	Corunna	9		yes				1	
24	Coldwater	24	1	no		2	1		
25	Detroit	723	10	yes					
26	Dowagiac	18	1	no	1				
27	East Tawas	9		yes		1			1
28	Eaton Rapids	14		yes	3			1	
29	Escanaba	22	1	no	2	5	1		
30	Essexville	3							
31	Fenton	13							
32	Flint	48	2	yes		2	2	3	1
33	Gladstone	8		yes			1		
34	Gladwin	4		yes		1			
35	Grand Ledge, No. 9	5		yes		1			
36	Grand Ledge, No. 11	4		yes	1	1			
37	Grand Haven	27	2	yes		2			
38	Grand Rapids	339	3	yes		42	11	19	
39	Greenville	15	2	no					
40	Hancock	16		yes	1	10		1	4
41	Harrison	3		yes					1
42	Hastings	17		no		1		1	1
43	Hillsdale	18	2	no		2			2
44	Holland	31	1	yes				1	
45	Houghton	13	1	yes		2			6
46	Howell	15	1	yes				1	
47	Hudson	9	1	yes		2	1		
48	Ionia	26	2						
49	Iron Mountain	35		yes		10		1	1
50	Ironwood	30	2	yes	1	3			3

XIX.

cities and villages having a population over 1,200.

No. holding county second grade certificates.	No. holding county third grade certificates of class B.	No. holding county third grade certificates of class A.	No. holding county special certificates.	No. holding city certificates granted according to the provisions of Sec. 13, act No. 66 of the laws of 1896.	No. who have been teaching in the same school one year or less.	No. who have taught in the same school between 2 and 5 years.	No. between 5 and 10 years.	No. between 10 and 15 years.	No. between 15 and 20 years.	No. between 20 and 25 years.	No. over 25 years.	Longest time of service by any one teacher in years.	Line number.
					1	8	8	6	2		1	25	1
				23	8	8	5	2	1				2
8	1				5	5	5	1				15	3
3		2			4	1	3	1				11	4
				31	4	11	14	6					5
	2				9	15	12	7	5	3	3	32	6
1	3				3	6						4	7
6	3	3			15	22	15	8		3		23	8
				102	21	29	26	18	6	2		21	9
	1			11	8	2	2					6	10
				5	7	3	2					7	11
3		1		10	15	10	2					7	12
2					6	4	4		2			18	13
4	4				3	2	5					8	14
				8	2	23	2	1				10	15
8		21			29	15	12	3				14	16
3	4				5	4	2			1		22	17
4	2				5	5						2	18
					4	10	7		1			17	19
12		3		2	8	3	7	3		1		23	20
4	1	1			5	4			1	1	1	26	21
2	2	3			5	4						4	22
1	1			6	4	3	2					6	23
					1	12	8		3	1		23	24
					127	217	200	86	44	36	23	38	25
					3	9	5	1				12	26
3	4			9	2	6	1					5	27
	2				3	6	4	1				12	28
					23							1	29
	3				1	2						2	30
1	1				2	6	4	1				12	31
2				50	9								32
3	4				3	3	2					6	33
2		1		1	4	1						4	34
3					2	1	2					10	35
	1	2			3		1		1			19	36
8				17	8	10	6	2		1		23	37
				267	121	101	52	40	11	13	1	31	38
					3	6	2	2				13	39
			1		5	7	3					8	40
1	2				1	1	1					10	41
2				10	6	5	5	1					42
3	10				5	7	6	1	1			17	43
				32	11	14	5	2				12	44
3		2	1		4	8	1					7	45
6	9				4	7	4					9	46
				7	3	4	1		1			20	47
				27	10	9	2	3	1		1	30	48
2				21	22	10	2	1				13	49
5				20	6	20	6					9	50

TABLE XIX.—

Line number.	Cities and villages having a population over 1,500, census of 1894.	No. of teachers in schools, not including the superintendent and special teachers.	No. of special teachers employed.	Are all regular teachers holders of legal certificates of qualification?	No. holding certificates granted or endorsed by the State Board of Education.	No. holding State Normal School certificates granted under the provisions of act 194, of the laws of 1889.	No. holding university certificates granted according to act No. 148, of the laws of 1891.	No. holding college certificates granted according to act No. 136, of the laws of 1893.	No. holding county first grade certificates.
51	Ishpeming	47	1	yes	1				1
52	Ithaca	11		yes	2				2
53	Jackson, No. 1	50	2	no	2	20	3	2	
54	Jackson, No. 17	35	1	no		2	1		1
55	Kalamazoo	81	2	yes	2	2			
56	Lake Linden	30		yes	2		1		8
57	Lansing	66	2	yes		7	5		1
58	Lapeer	19		yes		1	1	2	
59	Lowell	10	1	yes		4			
60	Ludington	43	1	yes	4	4	1		1
61	Manistee	66	3	no		10	2		
62	Manistique	17		yes	1	6	2	3	
63	Marine City	12		yes	1	1			1
64	Marquette	33	1	yes					
65	Marshall	21	2	no		2	2		
66	Mason	9		yes		1			
67	Menominee	50	3	yes	6	5		8	
68	Midland	13		yes	1	1			2
69	Monroe	17		no	2		1	1	
70	Mt. Clemens	21	2	yes		1		1	3
71	Muskegon	96	2	yes					
72	Negaunee	28		yes		7			6
73	Niles	21	2	no		1	1		3
74	North Muskegon	4		yes					1
75	Northville	7		yes	3				1
76	Norway	8		yes		1			
77	Ontonagon	16		yes		3			1
78	Otsego	10	1	yes	2	3			1
79	Owosso	37		yes		4	2	2	2
80	Paw Paw	7		yes		1		1	
81	Petoskey	20	1	yes		6			2
82	Pontiac	27	1	yes		5			
83	Port Huron	69		yes	1	3	8		1
84	Portland	11	1	yes		4			1
85	Romeo	8		yes		2	1		
86	Saginaw, W. S.	77	4	yes		7	2		1
87	St. Clair	13	1	no					3
88	St. Ignace	10		no		3			
89	St. Johns	19	1	yes		2		1	
90	St. Joseph	20	1	yes		1	1	1	
91	St. Louis	11		yes		3			
92	Sault Ste. Marie	33	2	yes		7	1	1	3
93	South Haven	11		yes		2		1	
94	Stanton	9		yes		2			1
95	Sturgis	13	1	yes		1			
96	Tecumseh	13	1	yes		2			
97	Three Rivers	19	1	yes			1	1	2
98	Traverse City	36	2	yes		21	1	1	2
99	Vassar	9	1	yes					2
100	Vicksburg	6		yes	1				
101	Wayne	6	1	yes		2			
102	Whitehall	10		yes		2			1
103	Wyandotte	16	1	yes		8	2		
104	West Bay City	59	3	yes		1	1	3	2
105	Ypsilanti	22	1	yes	1	14	1		1

CONCLUDED.

No. holding county second grade certificates.	No. holding county third grade certificates of class B.	No. holding county third grade certificates of class A.	No. holding county special certificates.	No. holding city certificates granted according to the provisions of Sec. 13, act No. 66 of the laws of 1895.	No. who have been teaching in the same school one year or less.	No. who have taught in the same school between 2 and 5 years.	No. between 5 and 10 years.	No. between 10 and 15 years.	No. between 15 and 20 years.	No. between 20 and 25 years.	No. over 25 years.	Longest time of service by any one teacher in years.	Line number.
4					30	12	2	1	2			19	51
3	3	2			5	7						3	52
2					9	27	7	4	3				53
1	3				1	20	7	1	3		3	28	54
	2		1		28	38	8	4	2		1	25	55
10		9	1		9	8	12	2				12	56
6				47	16	31	14	3			2	29	57
				15	4	4	6	5					58
2	2	3			2	8						4	59
				37	7	18	13	3	2			18	60
				47	15	34	14	3				14	61
1	5				9	6	2					8	62
2	8				5	6		1				15	63
				33	8	12	7	8				14	64
				1	4	10	5	1			1	26	65
				8	5	4						3	66
				34	42	9	3					9	67
6		2		1	6	4	3					9	68
	2				3	10	3		1			17	69
6	6	4			9	6	5	1				12	70
					19	40	27	9		1		20	71
4	5	5			10	13	4	1				12	72
3	2				7	6	4	3	1				73
3	1				1	4						3	74
1	3				2	5	1					6	75
				7	3	4	1	1				12	76
	11	1			8	7		1				14	77
5					5	4	1			1		22	78
				27	12	15	5	3	1			15	79
3	1	1	1		3	5						3	80
					8	9	2	1				14	81
2				28	10	5	6		3	2	1	28	82
				56	6	35	15	8	2	1	1	28	83
3	2	1			5	6						2	84
1	4					2	6					9	85
			1	81	15	56	7		2			21	86
1	1	2			5	2	4	1	1			18	87
1		1			4	4	2					6	88
7	8	3			7	13	1					8	89
1				17	6	12	1	1				11	90
1				7	5	6						4	91
8				13	12	11	9			1		23	92
2	3	3			2	7		2				12	93
5	2				5	3	2						94
11		2				9	3				1	27	95
2	3	6			4	4	5	1	1			17	96
4	6	5			3	11	3	2				15	97
12					14	17	7	1				12	98
1	4	2			1	6	2					6	99
2		3	1		1	5	1					6	100
2	2				3	2	1					6	101
5	1	1	1		4	5	1					6	102
				5	7	5	3	1				13	103
1	1				22	25	6	5	1			19	104
2	2				16	5	1					5	105

TABLE XX.

Receipts and expenditures at teachers' institutes for the calendar year 1895.

Counties.	Location.	Date.	Receipts.		Expenditures.			Totals.
			County fund.	State fund.	Compensation of instructors.	Expenses of instructors.	Other expenses.	
Totals			$10,762 16	$1,810 36	$8,753 07	$2,752 86	$1,066 59	$12,572 52
Alger	Au Train	October 21-25	$9 00	$60 00	$50 40	$16 60	$2 00	$69 00
Allegan	Allegan	March 21-23	125 40		66 00	31 95	27 45	125 40
	Douglas	October 31-November 2	135 72		75 00	42 50	18 22	135 72
Alpena	Alpena	August 19-23	40 50	60 00	76 55	23 95		100 50
Antrim	Bellaire	July 29-August 2	69 00	50 00	90 00	18 00	11 00	119 00
Arenac	Standish	July 8-12	77 50	30 00	89 35	17 15	1 00	107 50
Baraga	Baraga	October 7-11	41 50	45 45	59 98	26 95		86 93
Barry	Hastings	August 5-9	185 13		124 00	48 88	12 25	185 13
Bay	Bay City	August 26-30	184 20		130 00	34 45	19 75	184 20
Benzie	Benzonia	August 19-23	88 80	50 00	98 35	36 90	3 55	138 80
Berrien	St. Joseph	February 15-17	163 75		90 00	52 75	21 00	163 75
Branch	Coldwater	August 26-30	151 18		100 00	39 18	12 00	151 18
Calhoun	Marshall	August 19-23	187 45		120 00	43 15	24 30	187 45
Cass	Cassopolis	August 19-23	133 00		100 00	23 85	9 15	133 00
	Dowagiac	November 7-9	163 50		100 00	33 50	30 00	163 50
Charlevoix	East Jordan	August 26-30	73 00	40 00	68 42	40 58	4 00	113 00
Cheboygan	Cheboygan	August 5-9	26 00	60 00	44 41	40 99	60	86 00
Clare	Harrison	August 19-23	70 00	45 00	90 00	21 50	3 50	115 00
Clinton	St. Johns	April 1-5	155 80		120 00	17 80	18 00	155 80
Crawford	Grayling	April 1-5	47 50	59 42	85 00	16 92	5 00	106 92
Delta	Gladstone	April 15-19	58 00	60 00	86 00	32 00		118 00
Dickinson, Iron	Iron Mountain	October 4-5	84 50	30 44	78 41	19 08	17 50	114 94
Eaton	Charlotte	August 5-9	218 46		140 00	55 56	22 90	218 46
		October 17-18	55 00		35 00	11 80	8 20	55 00
Emmet	Petoskey	May 23-25	50 00	65 96	50 00	60 00	5 96	115 96
Genesee	Flint	August 12-17	240 00		165 00	46 96	28 04	240 00
Grand Traverse	Traverse City	August 26-30	68 00	55 00	87 61	35 39		123 00
Gratiot	Ithaca	August 5-9	190 45		125 00	55 40	10 05	190 45
Hillsdale	Hillsdale	July 8-12	199 66		135 00	32 41	32 25	199 66
Houghton	Houghton	August 26-30	170 32		100 00	57 57	12 75	170 32
Huron	Bad Axe	November 11-15	192 49		120 00	58 24	14 25	192 49
Ingham	Mason	August 26-30	130 30		100 00	12 68	17 62	130 30
Ionia	Ionia	August 19-23	201 35		140 00	53 85	7 50	201 35
Iosco	East Tawas	August 26-30	41 50	60 00	90 00	11 50		101 50
Isabella	Mt. Pleasant	August 19-23	83 70	33 75	90 00	15 83	11 65	117 48
Jackson	Jackson	January 10-12	184 95		90 00	39 00	55 95	184 95
		August 19-23	238 26		160 00	46 51	31 75	238 26
		November 14-16	121 35		77 00	26 30	18 05	121 35

Kalamazoo	Kalamazoo	July 22-August 9	340 50		316 50	3 50	20 50	340 50
Kalkaska	Kalkaska	August 19-23	33 00	60 00	70 10	22 90		93 00
Kent	Grand Rapids	July 22-August 14	495 22		440 00	18 22	37 00	495 22
Keweenaw	Eagle River	November 4-8	21 50	50 00	42 70	28 10	70	71 50
Lake	Luther	August 26-30	50 00	60 00	83 15	23 45	4 40	110 00
Lapeer	Lapeer	October 24-26	166 01		100 00	30 91	35 10	166 01
Lenawee	Adrian	August 19-23	226 45		160 00	59 71	6 74	226 45
Livingston	Howell	August 19-23	199 60		140 00	52 10	7 50	199 60
Luce	Newberry	October 14-18	32 00	50 00	52 60	26 90	2 50	82 00
Mackinac	St. Ignace	September 9-13	58 50	60 00	70 00	37 50	11 00	118 50
Macomb	Utica	July 22-26	91 00		60 00	17 85	13 15	91 00
Manistee	Manistee	August 26-30	106 50	40 80	100 00	39 30	8 00	147 30
Marquette	Marquette	October 4-6	150 20	22 00	82 00	86 95	3 25	172 20
Mason	Ludington	July 22-26	71 00	50 00	89 30	29 20	2 50	121 00
Mecosta	Big Rapids	August 26-30	193 11		120 00	53 86	19 25	193 11
Menominee	Menominee	April 25-27	28 00	60 00	66 06	21 94		88 00
	Stephenson	August 26-30	57 00		57 00			57 00
Midland	Midland	August 26-30	53 00	60 00	90 00	23 00		113 00
Missaukee	Lake City	August 19-23	51 50	60 00	96 00	14 50	1 00	111 50
Monroe	Monroe	August 26-30	166 85		100 00	37 00	29 85	166 85
Montcalm	Stanton	July 29-August 2	189 88		140 00	35 53	14 35	189 88
Montmorency	Lewiston	September 9-13	33 00	60 00	72 11	13 72	7 17	93 00
Muskegon	Casnovia	August 19-23	134 30		100 00	23 70	10 60	134 30
Newaygo	Fremont	August 19-23	94 00	35 00	102 75	23 67	2 58	129 00
Oakland	Pontiac	August 19-30	343 18		240 00	68 43	34 75	343 18
Oceana	Hart	August 5-9	93 00	35 00	86 10	31 90	10 00	128 00
Ontonagon	Ontonagon	April 1-5	42 00	60 00	54 16	47 84		102 00
Osceola	Evart	August 5-9	101 00	25 00	90 00	26 25	9 75	126 00
Otsego	Gaylord	August 26-30	42 50	60 00	85 00	14 50	3 00	102 50
Ottawa	Spring Lake	August 26-30	151 50	10 36	119 06	35 80	7 00	161 86
Presque Isle	Rogers City	April 15-19	51 00	52 17	70 00	31 97	1 20	103 17
Saginaw	Saginaw, E. S.	September 12-14	182 80		98 00	61 80	23 00	182 80
St. Clair	Port Huron	August 5-13	229 00		205 00	23 30	70	229 00
St. Joseph	Sturgis	July 29-August 2	147 60		100 00	34 70	12 90	147 60
Schoolcraft	Manistique	October 28-November 1	48 00	50 00	56 20	29 30	12 50	98 00
Shiawassee	Corunna	August 5-14	212 79		161 00	36 09	15 70	212 79
Tuscola	Caro	August 26-30	182 02		125 00	45 42	11 60	182 02
Van Buren	Paw Paw	July 29-August 14	353 20		290 00	48 95	14 25	353 20
Washtenaw	Ann Arbor	July 29-August 2	207 58		140 00	48 05	19 53	207 58
Wayne	Wyandotte	August 26-30	183 00		140 00	38 00	5 00	183 00
	Detroit	September 6-12	417 15		225 00	69 77	122 38	417 15
Wexford	Sherman	July 22-26	76 50	45 00	72 80	39 70	9 00	121 50

TABLE XXI.

Local committees, conductors, and instructors at teachers' institutes for the calendar year 1895.

Counties.	Local committees.	Conductors.	Instructors.	Instructors.	Instructors.	Instructors.
Alger	H. W. Schall	H. C. Rankin.				
Allegan *1	J. W. Humphrey	H. R. Pattengill	Francis W. Parker	A. G. Slocum	Mrs. C. H. Stanley.	
Allegan *2	J. W. Humphrey; H. W. McIntosh	H. R. Pattengill	Francis W. Parker	Mrs. Thorne-Thomsen		
Alpena	Jas. A. Case	E. L. Briggs	L. S. Norton.			
Antrim	J. R. Jenkins	C. B. Hall	H. C. Lott.			
Arenac	Julia A. Inglis	J. K. Osgerby	G. E. Swarthout.			
Baraga	M. J. McKanna	R. W. Putnam	M. J. McKanna	H. R. Pattengill.		
Barry	Flora Beadle	F. E. Converse	Orr Schurtz	M. A. Whitney	C. T. McFarlane.	
Bay	J. W. Smith	C. H. Gurney	Orr Schurtz	Louise Miller	F. E. Wood.	
Benzie	P. G. Holden	J. B. Estabrook	J. G. Monroe.			
Berrien *	E. P. Clarke	H. R. Pattengill	Francis W. Parker	Mrs. Thorne-Thomsen		
Branch	M. W. Wimer	A. J. Murray	Florence C. Fox.			
Calhoun	A. G. Randall	A. J. Murray	E. C. Warriner	A. G. Randall.		
Cass 1	C. E. Cone	G. J. Edgecumbe	W. L. Shuart.			
Cass *2	C. E. Cone; S. B. Laird	H. R. Pattengill	Delos Fall	John Dewey	Ada V. Harris.	
Charlevoix	F. H. Ranney	S. B. Laird	W. J. McKone.			
Cheboygan	G. S. Moore	C. T. Grawn	L. H. Stewart.			
Clare	E. D. Palmer	Orr Schurtz	J. R. Miller.			
Clinton	R. M. Winston	E. M. Plunkett	Chas. McKenny	J. G. Monroe.		
Crawford	Wm. F. Benkelman	F. D. Smith	Wm. F. Benkelman.			
Delta	A. P. Smith	S. B. Tobey	J. W. Kinsel.			
Eaton 1	J. L. Wagner	C. H. Gurney	Hamilton King	Ada V. Harris.		
Eaton *2	J. L. Wagner; O. L. Miller	H. R. Pattengill	B. A. Hinsdale	R. G. Boone	O. L. Miller.	
Emmet*	Abbie Roe	H. R. Pattengill	W. M. Andrus	G. R. Catton	Perry F. Powers	C. T. McFarlane. Mrs. L. W. Treat.
Genesee	A. E. Ransom	W. N. Ferris	C. T. McFarlane	Harriet Marsh	Florence Marsh.	
Grand Traverse	G. W. McWethey	W. J. McKone	D. E. McClure.			
Gratiot	O. G. Tuttle	G. J. Edgecumbe	A. Hamlin Smith	M. Helen Jennings.		
Hillsdale	W. H. French	W. H. Cheever	S. J. Gier	Florence C. Fox.		
Houghton	Wm. Bath	S. B. Tobey	Ada V. Harris.			
Huron	D. E. Spencer	C. H. Gurney	A. G. Randall	Jennie M. Tibbitts.		
Ingham	W. W. Weeks	H. C. Rankin	C. O. Hoyt.			
Ionia	E. B. Hale	C. T. Grawn	J. O. Reed	T. L. Evans.		
Iosco	J. K. Osgerby	W. H. Maybee	J. K. Osgerby.			
Iron and Dickinson *	E. L. Parmenter; Thos. Conlin	W. H. Cheever	Francis W. Parker.			
Isabella	Fred Bellinger	F. R. Hathaway	P. H. Kelley.			
Jackson *1	W. H. Maybee	H. R. Pattengill	Francis W. Parker	Mathilde E. Coffin.		
Jackson 2	W. H. Maybee	Chas. McKenny	Austin George	Louise Miller	C. T. McFarlane.	
Jackson *3	W. H. Maybee; T. L. Evans; M. L. Palmer	H. R. Pattengill	Dr. R. G. Boone	A. G. Slocum	Ada V. Harris	Frances Cheever Burton.

Kalamazoo	Ashley Clapp	R. W. Putnam	W. E. Conklin	E. N. Worth.		
Kalkaska	Bertha H. Whipple.	H. T. Blodgett	Jennie M. Tibbitts.			
Kent	A. Hamlin Smith	E. A. Carpenter	E. A. Fletcher	N. H. Walbridge	G. T. Chapel C. T. McFarlane	H. D. Minchin. A. H. Smith.
Keweenaw	L. S. Braendle	H. C. Rankin.				
Lake.	E. G. Johnson	J. G. Plowman	M. O. Graves.			
Lapeer*	C. E. Palmerlee	H. R. Pattengill	Delos Fall	R. G. Boone	Mathilde E. Coffin.	
Lenawee	E. Keeler	C. H. Gurney	F. E. Converse	Anna M. Chandler	C. T. McFarlane.	
Livingston	Stephen Durfee	J. W. Simmons	E. C. Goddard	Nettie D. Kimberlin.		
Luce	Emma Sherman	R. W. Putnam	H. R. Pattengill.			
Mackinac	D. H. Stringham	W. N. Ferris	J. D. Houston.			
Macomb	R. J. Crawford	J. W. Simmons.				
Manistee	Mrs. L. E. W. Hall	E. C. Goddard	J. H. Sheffield	C. B. Hall.		
Marquette*	J. B. Montgomery	H. R. Pattengill	Francis W. Parker	C. T. McFarlane	Mathilde E. Coffin.	
Mason	Anna Chandler Mary McKenzie	H. C. Lott	E. J. Quackenbush.			
Mecosta	J. D. Michael	J. O. Reed	Lucy A. Sloan	C. T. McFarlane.		
Menominee *1	J. W. Bird	H. R. Pattengill	W. H. Cheever	W. C. Hewitt.		
Menominee 2	O. I. Woodley					
Midland	Rachel Burns	Wayne Simmons	J. E. Beckler.			
Missaukee	Melinda L. Mills	H. T. Blodgett	R. C. Ely.			
Monroe	E. S. Hall	Geo. R. Catton	J. G. Plowman.			
Montcalm	A. E. Ames	Hamilton King	F. R. Hathaway.			
Montmorency	A. N. Demoray	C. L. Bemis	E. T. Austin	Jennie M. Tibbitts.		
Muskegon	H. B. Fuller	H. C. Rankin	H. B. Fuller	Stewart Gorton.		
Newaygo	T. J. G. Bolt	D. E. McClure	M. O. Graves.			
Oakland	F. C. Stillson	N. H. Walbridge	Albert Jennings	F. C. Stillson.		
Oceana	H. H. Snowden	W. N. Ferris	C. L. Bemis	S. O. Wood.		
Ontonagon	D. E. McClure	J. W. Simmons	F. D. Smith.			
Osceola	Anson Shuster	H. C. Rankin	L. L. Wright.			
Otsego	Albert Allen	Austin George	James H. Kaye.			
Ottawa	R. D. Bailey	S. B. Laird	R. D. Bailey.			
Presque Isle	Cora M. Goodenow	G. J. Edgecumbe	Smith Burnham	C. T. McFarlane.		
Saginaw*	G. Covey, Jr. G. A. Woolsey E. C. Thompson A. S. Whitney	H. C. Rankin. H. R. Pattengill	B. A. Hinsdale	Francis W. Parker	C. E. Palmerlee.	
St. Clair	R. B. Fairman	O. D. Thompson	J. H. Beazell	G. A. McGee.		
St. Joseph	John Evert	F. A. Barbour	W. V. Sage.			
Schoolcraft	J. A. Chisholm	H. C. Rankin.				
Shiawassee	E. D. Dimond	Chas. McKenny	G. A. Parker.			
Tuscola	T. J. Reavey	F. A. Barbour	Harriet Marsh	Florence Marsh.		
Van Buren	J. A. O'Leary	C. O. Hoyt	E. A. Aseltine	C. T. McFarlane	F. C. Penoyar.	
Washtenaw	W. W. Wedemeyer	E. L. Briggs	Ada V. Harris	M. A. Whitney.		
Wayne 1	T. Dale Cooke	Chas. McKenny	Albert Jennings	Webster Cook.		
Wayne *2	W. E. Robinson	H. R. Pattengill	R. G. Boone	H. L. Southwick	W. S. Jackman.	
Wexford	H. C. Foxworthy	C. B. Hall	O. M. McLaughlin.			

* Inspiration institute.

TABLE XXII.

Enrollment at teachers' institutes for the calender year 1895.

Counties.	No. of teachers required to supply schools.	No. enrolled.			Kinds and grades of certificates held by members.						No. without experience in teaching.	No. having received Normal instruction.	Average attendance each half day.	No. of legally qualified teachers in county.	Percentage of whole No. of teachers that attended institutes.
		Men.	Women.	Total.	State.	Normal.	First.	Second.	Third.	Special.					
Totals	11,244	2,291	7,418	9,709	94	223	373	1,218	4,799	92	2,535	1,008	7,561	11,464	71
Alger	10	10	10	20	----	2	1	1	6	----	10	4	14	17	59
†Allegan	235	*1 77	206	283	4	4	12	48	115	----	100	18	262	348	51
		*2 21	52	73	----	----	----	----	----	----	----	----	----		----
†Alpena	66	6	67	73	----	----	----	2	52	----	19	1	62	40	130
Antrim	97	21	46	67	----	2	1	8	38	----	14	3	56	127	39
Arenac	41	11	48	59	----	----	4	8	27	----	23	4	42	62	63
Baraga	18	5	22	27	----	----	2	3	14	2	5	1	25	31	70
Barry	151	55	152	207	2	2	4	22	119	8	50	8	174	332	47
Bay	233	25	172	197	----	----	14	21	51	----	109	12	139	83	103
Benzie	71	12	39	51	----	----	----	8	31	----	16	1	41	96	40
Berrien	*259	86	169	255	5	5	16	30	102	7	90	28	238	237	67
Branch	178	40	59	99	1	----	2	10	66	----	27	11	50	‡213	42
Calhoun	288	36	106	142	----	2	5	17	87	2	24	17	94	203	56
Cass	153	1 30	61	91	----	----	2	10	65	3	11	15	76	207	39
		*2 30	136	166	3	13	12	16	63	----	58	26	150		77
Charlevoix	95	21	38	59	2	1	1	11	32	----	12	----	44	139	34
Cheboygan	81	15	61	76	2	2	4	11	37	----	24	9	63	70	80
Clare	59	7	21	28	----	1	3	10	11	----	6	3	22	61	60
Clinton	169	28	117	145	1	1	4	12	86	1	40	5	124	‡242	85
Crawford	45	4	29	33	----	2	----	7	15	9	4	23	88	35	94
Delta	63	7	26	33	----	1	2	3	19	----	6	3	30	72	35
Eaton	208	*1 67	185	252	2	3	5	22	138	----	95	11	203	248	68
		2 25	69	94	3	7	2	19	42	----	15	14	82		30
Emmet	82	18	86	104	2	7	6	13	56	----	18	12	104	79	106
Genesee	243	68	172	240	----	4	11	46	133	----	57	16	221	237	82
Grand Traverse	79	19	82	101	----	----	5	16	56	----	24	6	61	140	55
Gratiot	171	65	121	186	1	----	3	14	125	----	43	4	159	236	60
Hillsdale	217	31	132	163	2	----	7	24	96	1	33	11	132	208	62
Houghton	177	14	79	93	5	17	7	27	32	----	16	33	49	170	52
Huron	141	56	94	150	1	3	11	28	70	----	36	12	125	153	74
Ingham	236	43	69	112	1	2	2	19	81	----	17	13	91	241	44
Ionia	219	37	126	163	----	----	6	28	92	2	61	6	131	309	41
Iosco	58	8	45	53	1	1	3	11	37	----	21	4	39	95	56
Iron and Dickins'n	* 80	20	112	132	13	3	11	20	46	----	39	43	126	65	143
Isabella	120	34	121	155	----	3	2	22	76	----	52	74	133	145	71
Jackson	271	*1 67	182	249	3	9	11	17	96	----	72	25	247	219	62
		2 45	155	200	2	10	4	28	155	1	27	27	131		91
		*3 46	152	198	6	7	10	29	76	----	53	31	142		58
Kalamazoo	249	27	156	183	----	----	2	18	97	2	59	----	140	191	62
Kalkaska	58	17	49	66	----	----	3	8	30	----	21	1	58	67	61
Kent	602	49	239	288	1	4	5	23	166	----	95	13	190	401	50
Keweenaw	9	10	17	27	----	1	1	3	8	----	14	3	25	13	100
Lake	55	18	68	86	4	1	2	9	21	----	41	11	67	60	63
Lapeer	*183	47	153	200	----	8	10	34	120	----	37	21	180	236	73
Lenawee	292	28	89	117	----	----	3	17	76	2	15	20	72	‡350	28

* Inspiration institute.
† Incomplete data sent in.
‡ Estimated.

TABLE XXII.—Concluded.

Counties.	No. of teachers required to supply schools.	No. enrolled.			Kinds and grades of certificates held by members.						No. without experience in teaching.	No. having received Normal instruction.	Average attendance each half day.	No. of legally qualified teachers in county.	Percentage of whole No. of teachers that attended institutes.
		Men.	Women.	Total.	State.	Normal.	First.	Second.	Third.	Special.					
Livingston	164	48	117	165	1	2	3	22	107	1	39	24	121	295	46
Luce	12	10	31	41	1	1	3	7	12	----	20	2	33	20	120
Mackinac	37	4	17	21	----	----	1	----	19	1	3	3	15	36	60
Macomb	168	35	50	85	1	1	4	16	28	----	20	5	61	204	20
Manistee	133	20	62	82	4	3	4	10	29	14	26	4	56	71	70
Marquette	*141	20	224	244	4	29	21	47	132	11	58	63	238	180	87
Mason	107	27	75	102	----	3	1	3	95	----	40	7	85	73	140
Mecosta	131	48	143	191	1	----	11	28	114	----	37	3	160	‡200	77
Menominee	105	*1 23 2 6	123 26	146 32	6 ----	18 ----	16 ----	25 2	36 17	---- ----	35 6	46 2	134 23	72	140 26
Midland	85	9	94	103	----	----	2	5	56	----	41	8	85	95	66
Missaukee	59	15	35	50	----	----	1	10	23	3	13	4	41	55	65
Monroe	169	62	139	201	----	2	5	21	112	----	61	44	154	210	66
Montcalm	195	18	56	74	----	----	4	10	46	----	16	4	61	185	32
Montmorency	14	10	23	33	----	----	1	5	16	----	12	----	29	38	60
Muskegon	215	21	82	103	----	----	8	9	60	----	30	10	96	147	52
Newaygo	132	26	115	141	----	----	8	16	88	----	37	14	117	210	53
Oakland	285	44	124	168	----	8	7	25	91	----	44	24	125	‡350	37
Oceana	103	42	101	143	2	----	6	22	76	----	57	8	127	135	78
Ontonagon	29	11	31	42	1	6	3	2	15	1	11	7	39	35	80
Osceola	123	20	68	88	----	----	4	21	39	1	29	4	79	149	44
Otsego	48	12	42	54	----	1	1	2	30	1	13	1	45	49	71
Ottawa	211	25	74	99	----	1	7	36	32	----	23	12	62	211	31
Presque Isle	33	17	14	31	----	----	2	1	13	2	13	----	26	33	54
†Saginaw	394	*60	320	380	----	----	----	----	----	----	----	----	----	‡245	----
†St Clair	----	22	119	141	----	----	----	----	----	----	----	----	105	163	----
St. Joseph	175	29	93	122	----	3	3	18	75	----	24	13	71	238	42
Schoolcraft	33	10	34	44	1	7	3	7	21	----	5	18	41	42	93
Shiawassee	193	40	75	115	----	----	3	13	73	----	32	4	85	101	88
Tuscola	186	42	107	149	----	1	11	31	84	----	35	9	121	325	39
Van Buren	209	34	138	172	----	1	----	16	106	1	52	8	130	260	48
Washtenaw	274	18	122	140	1	2	3	24	67	14	33	21	125	246	45
Wayne	907	33	102	135	----	6	4	6	87	1	35	32	102	226	46
Wexford	110	24	52	76	4	----	2	5	39	1	26	1	67	87	54

* Inspiration institute.
† Incomplete data sent in.
‡ Estimated.

TABLE XXIII.

County boards of school examiners.

[The first named in each county is commissioner.]

County.	Name.	Postoffice.	Occupation.
Alcona	Lorenzo Frederick	Gustin	Teacher.
	J. W. Talmie	Killmaster	Teacher.
	E. Gaheen	West Harrisville	Teacher.
	H. W. Schall	Grand Marais	Teacher.
Alger	Clara F. Snyder	Onota	Teacher.
	Ella Cox	Munising	Teacher.
Allegan	J. W. Humphrey	Wayland	Teacher.
	Benj. Neerken	Graafschap	Teacher.
	Mrs. D. V. Pursell	Plainwell	Teacher.
Alpena	Jas. A. Case	Alpena	Farmer.
	J. S. Canfield	Alpena	Lawyer.
	E. H. Fox	Long Rapids	Teacher.
Antrim	J. R. Jenkins	Mancelona	Teacher.
	A. J. Chappell	Alba	Teacher.
	G. E. Cabanis	Bellaire	Farmer.
Arenac	Julia A. Inglis	Sterling	Teacher.
	A. L. Wilkins	Maple Ridge	Farmer.
	S. R. Hoobler	Worth	Farmer.
Baraga	W. J. McKanna	Baraga	Teacher.
	C. E. Tuck	L'Anse	Teacher.
	M. J. McCabe	L'Anse	Lumberman.
Barry	Flora J. Beadle	Hastings	Teacher.
	W. D. Sterling	Ann Arbor	Student.
	O. W. McLaughlin	Nashville	Teacher.
Bay	J. W. Smith	Bay City	Attorney.
	S. G. Houghton	Auburn	Teacher.
	C. E. Clark	Pinconning	Teacher.
Benzie	P. G. Holden	Benzonia	Teacher.
	Mrs. E. K. Laflin	Frankfort	Teacher.
	Miss Hattie VanDeman	Benzonia	Teacher.
Berrien	E. P. Clark	St. Joseph	Teacher.
	R. H. Struble	Watervliet	Teacher.
	C. B. Groat	Niles	Teacher.
Branch	M. W. Wimer	Coldwater	Teacher.
	Mrs. L. A. W. Stevens	Coldwater	Teacher.
Calhoun	C. E. Waterbury	Quincy	Teacher.
	A. G. Randall	Tekonsha	Teacher.
	E. L. McPherson	Burlington	Teacher.
	Guy Fisk	Pine Creek	Farmer.
Cass	C. E. Cone	Cassopolis	Teacher.
	S. E. Witwer	Pokagon	Teacher.
	L. L. Coates	Edwardsburg	Teacher.
Charlevoix	Frank H. Ranney	East Jordan	----------
	A. W. Chew	Bayshore	Teacher.
	S. S. Shepard	Petoskey	Farmer.
Cheboygan	G. S. Moore	Cheboygan	Teacher.
	D. J. Galbraith	Cheboygan	Teacher.
	E. W. Baker	Cheboygan	Teacher.
Chippewa	T. R. Easterday	Sault Ste. Marie	Clergyman.
	A. J. Campbell	Sault Ste. Marie	Physician.
	----------	----------	----------
Clare	E. D. Palmer	Clare	Editor.
	F. A. Carnecross	Dover	Farmer.
	A. R. Canfield	Clare	Editor.
Clinton	R. M. Winston	St. Johns	Teacher.
	E. M. Plunkett	Ovid	Teacher.
	J. B. Stone	Westphalia	Teacher.
Crawford	Flora Marvin	Grayling	Teacher.
	Mrs. E. Cobb	Frederic	Teacher.
	Anna Reardon	Frederic	Teacher.
Delta	A. P. Smith	Gladstone	Lawyer.
	P. R. Legg	Garden	Teacher.
Dickinson	Margaret S. Fleming	Escanaba	Teacher.
	Ed. L. Parmenter	Vulcan	Lumberman.
	T. W. Paton	Iron Mountain	Teacher.
	E. P. Frost	Norway	Teacher.

TABLE XXIII.—CONTINUED.

County.	Name.	Postoffice.	Occupation.
Eaton	J. L Wagner	Charlotte	Teacher.
	Chas. McKenny	Olivet	Teacher.
	T. A. Conlon	Eaton Rapids	Teacher.
Emmet	A. L. Deuel	Harbor Springs	Attorney.
	M. C. Crandall	Cross Village	Farmer.
	A. D. Metz	Harbor Springs	Teacher.
Genesee	A. E. Ransom	Flushing	Editor.
	C. R. Jones	Gaines	Teacher.
	Annie Coghlin	Navan	Teacher.
Gladwin	T. G. Campbell	Gladwin	Attorney.
	Mrs. Kate Bordend	Gladwin	Teacher.
	Bessie I. Townsend	Gladwin	Teacher.
Gogebic	L. L. Wright	Ironwood	Teacher.
	J. W. Whitesides	Bessemer	Physician.
	J. H. Eddy	Wakefield	Physician.
Grand Traverse	Geo. W. McWethey	Traverse City	Teacher.
	E. O. Ladd	Traverse City	Teacher.
	C. T. Grawn	Traverse City	Teacher.
Gratiot	O G. Tuttle	Ithaca	Teacher.
	W. M. Coon	Alma	Student.
	J N. McCall	Ithaca	Editor.
Hillsdale	W. H. French	Hillsdale	Teacher.
	S. J. Gier	Hillsdale	Teacher.
	E. D. Reynolds	Ann Arbor	Student.
Houghton	Wm. Bath	Houghton	Bookkeeper.
	Thos. Dooling	Hancock	Judge of probate.
	A. T. Streeter	Calumet	Lawyer.
Huron	D. E. Spencer	Bad Axe	Teacher.
	J A. Morse	Port Austin	Teacher.
	E. Baskin	Ubly	Teacher.
Ingham	W. W Weeks	Aurelius	Farmer.
	A. A. Hall	Stockbridge	Teacher.
	M. Hanlon	Williamston	Druggist.
Ionia	E. B. Hale	Orleans	Teacher.
	Wm. Gill	Hubbardston	Teacher.
	Geo. Steadman	Lyons	Teacher.
Iosco	J. K. Osgerby	East Tawas	Teacher.
	F. F. Stephenson	Tawas City	Teacher.
	C. R. Henry	Au Sable	Lawyer.
Iron	Thos. Conlin	Crystal Falls	Miner.
	Geo. D. Crippen	Stambaugh	Civil engineer.
	M. B. McGee	Crystal Falls	Com. traveler.
Isabella	Fred Bellinger	Mt. Pleasant	Teacher.
	O. L. Burdick	Ypsilanti	Student.
	Jas. Lyons	Ann Arbor	Student.
Jackson	W. H. Maybee	Grass Lake	Teacher.
	F. W. Wells	Concord	Teacher.
	R. B. Pickett	Springport	Teacher.
Kalamazoo	Ashley Clapp	Kalamazoo	Teacher.
	W. E. Conklin	Galesburg	Teacher.
	J. W. Hazard	Fulton	Teacher.
Kalkaska	Bertha H. White	South Boardman	Teacher.
	J. W. Morley	Mossback	Farmer.
	Frank Sack	South Boardman	Teacher.
Kent	A. Hamlin Smith	Grand Rapids	Teacher.
	G. T. Chapel	Sand Lake	Teacher.
	E. A. Carpenter	Grand Rapids	Teacher.
Keweenaw	L. S. Braendle	Eagle River	Teacher.
	Mary Richards	Allonez	Teacher.
	Fred Bradam	Central Mine	Teacher.
Lake	E. G. Johnson	Luther	Farmer.
	A. U. Smith	Baldwin	Farmer.
	Homer Cutler	Luther	Farmer.
Lapeer	C. E Palmerlee	Lapeer	Teacher.
	F. W. Weston	North Branch	Teacher.
	J. B. Nicholson	Almont	Teacher.
Leelanau	Geo. W. Benjamin	Suttons Bay	Teacher.
	W. J. Collum	Bingham	Teacher.
	Florence Bragdon	Northport	Teacher.
Lenawee	Edward Keeler	Adrian	Teacher.
	M. W. Hensel	Blissfield	Teacher.
	Wade Millis	Addison	Teacher.
Livingston	Stephen Durfee	Fowlerville	Teacher.
	W. A. Avery	Parshallville	Farmer.
	Jas. H. Wallace	Perry	Teacher.
Luce	E. L. Sherman	Newberry	Teacher.
	W. W Nicholson	Newberry	Doctor.
	Frank W. Greenfield	McMillan	Farmer.

TABLE XXIII.—CONTINUED.

County.	Name.	Postoffice.	Occupation.
Mackinac	D. H. Stringham	St. Ignace	Bookkeeper.
	G. H. Bobier	St. Ignace	Merchant.
	E. J. Lachance	Mackinac Island	Teacher.
Macomb	R. J. Crawford	Mt. Clemens	Teacher.
	E. R. Wilcox	Washington	Teacher.
	A. E. Millett	Utica	Teacher.
Manistee	Mrs. L. E. W. Hall	Manistee	Teacher.
	Geo. Crook	Bear Lake	Clergyman.
	M. S. Howes	Marilla	Farmer.
Marquette	J. B. Montgomery	Champion	Teacher.
	F. D. Davis	Negaunee	Teacher.
	A. E. Sterne	Michigamme	Teacher.
Mason	Mary McKenzie	Ludington	Teacher.
	B. S. Mills	Fountain	Farmer.
	Sylvester Loudon	Custer	Teacher.
Mecosta	J. D. Michael	Big Rapids	Teacher.
	H. C. Ward	Chippewa Lake	Merchant.
Menominee	Arthur Butler	Sylvester	Teacher.
	J. W. Bird	Menominee	Lumberman.
	Wayne Simmons	Stephenson	Teacher.
	C. M. Case	Hermansville	Accountant.
Midland	Melinda L. Mills	Midland	Teacher.
	A. V. Linton	Coleman	Doctor.
	C. L. Jenney	Midland	O. C. & C.
Missaukee	E. S. Hall	Lake City	Teacher.
	Duncan McBain	McBain	Teacher.
	L. A. Goll	Lake City	Teacher.
Monroe	A. E. Ames	Monroe	Teacher.
	S. H. Langdon	Ida	Teacher.
	Chas. Carrick	Milan	Teacher.
Montcalm	A. N. Demoray	Edmore	Teacher.
	A. L. Bemis	Carson City	Editor.
	E. D. Straight	Howard City	Teacher.
Montmorency	H. B. Fuller	Lewiston	Teacher.
	Chas. Cain	Hillman	Teacher.
	Thos Double	Atlanta	Dep. Co. clerk.
Muskegon	T. J. G. Bolt	Trent	Teacher.
	H. B. Carr	Whitehall	Teacher.
	N. R. Dryer	Holton	Teacher.
Newaygo	F. C. Stillson	Fremont	Teacher.
	Tyson Smith	Newaygo	Doctor.
	John Harwood	White Cloud	Lawyer.
Oakland	H. H. Snowdon	Pontiac	Teacher.
	L. N. Brown	Clarkston	Lawyer
	A. J. Croft	Clarkston	.....
Oceana	D. E McClure	Shelby	Teacher.
	J. L. Roberts	Flower Creek	Teacher.
	O. F. Munson	Hesperia	Teacher.
Ogemaw	Ben. Bennett	West Branch	Teacher.
	Flora McDonald	West Branch	Teacher.
	Archie McMillan	Prescott	Teacher.
Ontonagon	H. A. Graham	Ontonagon	Teacher.
	A. C. Adair	Rockland	Teacher.
	Ella Chamberlin	Ontonagon	Teacher.
Osceola	Albert Allen	Marion	Teacher.
	Jas. H. Kaye	Reed City	Teacher.
	Catherine Maxwell	Evart	Teacher.
Oscoda	Stewart Gorton	Luzerne	Farmer.
	J. E. Lochren	McKinley	Teacher.
	Eliza Deyarmond	Mio	Teacher.
Otsego	R. D. Bailey	Gaylord	Teacher.
	F. M. French	Vanderbilt	Teacher.
	V. G. Lanning	Gaylord	Lawyer.
Ottawa	Cora M. Goodenow	Berlin	Teacher.
	Seth Coburn	New Holland	Teacher.
	E. O. Cilley	Nunica	Teacher.
Presque Isle	Ed. Erskine	Rogers City	Doctor.
	H. L. Parris	Rogers City	Farmer.
	W. E. Bennett	Rogers City	Teacher.
Roscommon	E. G. Payne	Roscommon	Druggist.
	H. H. Woodruff	Roscommon	Lawyer.
	A. C. Sly	Roscommon	Editor.
Saginaw	G. A. Woolsey	Saginaw, E. S.	Teacher.
	J. A. Russell	Paines	Teacher.
	C. W. McCallum	Saginaw, E. S.	Teacher.
St. Clair	R. B. Fairman	Port Huron	Teacher
	C. J. McCormick	Smith's Creek	Teacher.
	R. E. Richardson	St. Clair	Teacher

TABLE XXIII.—CONCLUDED.

County.	Name.	Postoffice.	Occupation.
St. Joseph	John Evert	Mendon	Teacher.
	D. W. Herman	Burr Oak	Farmer.
	G. H. Merriman	Mendon	Teacher.
Sanilac	H. A. Macklem	Marlette	Teacher.
	J. M. Bostwick	Minden City	Cashier.
	C. H. Naylor	Lexington	Teacher.
Schoolcraft	John A. Chisholm	Seney	Teacher.
	Cary W. Dunton	Manistique	Attorney.
	Mrs. N. C. Mersereau	Manistique	Housekeeper.
Shiawassee	E. D. Dimond	Corunna	Teacher.
	J. A. Thompson	Carland	Teacher.
	J. W. Simmons	Owosso	Teacher.
Tuscola	T. J. Reavey	Caro	Teacher.
	Henry Bush, Jr.	Unionville	Teacher.
	P. G. Davis	Mayville	Teacher.
Van Buren	J. A. O'Leary	Paw Paw	Teacher.
	F. C. Penoyar	Bangor	Teacher.
	E. A. Aseltine	Gobleville	Teacher.
Washtenaw	Wm. W. Wedemeyer	Ann Arbor	Lawyer.
	M. J. Cavanaugh	Ann Arbor	Lawyer.
	Geo. H. Pond	Ann Arbor	Journalist.
Wayne	T. Dale Cooke	Detroit	Teacher.
	E. W. Yost	Flat Rock	Teacher.
	Frank Cody	Delray	Teacher.
Wexford	H. C. Foxworthy	Manton	Teacher.
	T. H. Callis	Manton	Teacher.
	E. F. Carr	Harrietta	Teacher.

TABLE XXIV.

General statistics of State and incorporated institutions, compiled from reports of officers for the academic year 1894–5.

Name of institution.	Location.	Name of president or superintendent.	Date of organization.	No. of instructors.	No. of students or (inmates) during the year.	No. of graduates at last commencement.	Whole No. of graduates since founded.	No. of volumes in library.	No. of volumes added to library during the year.
State:									
University of Michigan	Ann Arbor	James B. Angell	1841	170	2,874	707	13,103	98,707	6,479
Agricultural College	Lansing	L. G. Gorton	1857	26	406	30	676	18,726	1,850
State Normal School	Ypsilanti	R. G. Boone	1849	44	964	218	2,695	15,000	1,000
Mining School	Houghton	M. E. Wadsworth	1886	15	94	22	69	10,713	433
School for the Blind	Lansing	E. P. Church	1881	11	95			3,100	50
School for the Deaf	Flint	F. D. Clark	1854	24	375	18	1,099	4,017	
State Public School	Coldwater	A. N. Woodruff	1874	6	499			1,922	5
Industrial School for Boys	Lansing	J. E. St. John	1857	11	517			2,000	
Industrial Home for Girls	Adrian	Lucy M. Sickles	1879	27	343			1,000	
Incorporated:									
Academy of Sacred Heart	Detroit		1850	10	60			2,019	50
Adrian College	Adrian	D. C. Thomas	1859	16	228	14	400	6,600	400
Akeley Institute	Grand Haven	Geo. D. Gillespie	1888	8	40	4	19	1,000	75
Albion College	Albion	L. B. Fiske	1861	30	630	68	779	10,200	530
Alma College	Alma	A. F. Bruske	1887	13	220	3	20	e 13,832	704
Battle Creek College	Battle Creek	Geo. W. Caviness	1874	24	670	16	182	400	
Benzonia College	Benzonia								
Detroit College	Detroit	H. A. Schapman	1877	19	300	14	98	8,650	200
Detroit Home and Day School	Detroit	Jas. D. Liggett	1878	15	190	13	143	900	30
Evelyn Industrial Institute	Manistee	Miss E. S. Olmstead	1886	3	30	1		100	30
German American Seminary	Detroit	Dr. Brasch	1861	3	75			400	100
Hillsdale College	Hillsdale	Geo. F. Mosher	1855	28	410	36	814	9,017	319
Holland Christian Reformed Seminary	Grand Rapids	G. K. Hemkes	1876	5	52	7	44	300	50
Hope College	Holland	G. J. Kollen	1865	18	273	11	185	9,000	1,000
Kalamazoo College	Kalamazoo	A. Gaylord Slocum	1855	11	165	7	199	5,946	70
Michigan Female Seminary	Kalamazoo								
Military Academy	Orchard Lake	J. Sumner Rogers	1877	10	154	17	251	10,000	700
Olivet College	Olivet	W. G. Sperry	1859	24	397	18	399	24,000	1,000
Raisin Valley Seminary	Adrian	T. W. White	1849	3	52	9	135	500	
St. Mary's Academy	Monroe	Mother M. Justina	1862	20	159	4	62	2,757	82
Spring Arbor Seminary	Spring Arbor	D. S. Warner	1873	6	130	14	92	600	150

TABLE XXV.

Financial statistics of State and incorporated institutions compiled from reports of officers for the academic year 1894–95.

Name of institution.	Annual cost of tuition per student.	Average cost of board per week.	Total annual cost per student (to the student).	Total annual cost per student (to the State).	Estimated value of grounds, buildings, apparatus, etc.	Amount of productive funds.	Income from productive funds.	Amount of legislative appropriation for the year 1895.	Receipts from tuition fees.	Receipts from all other sources.	Current expenses for the year.	Expenses for permanent improvements.	Liabilities.
State:													
University of Michigan	$50 00	a$4 50	$250 00	$56 00	$1,510,000 00	$545,926 00	$38,500 00	$194,333 00	$125,830 00	$16,147 86	$363,563 00	$13,757 00	
Agricultural College	b 15 00	2 50	125 00		500,000 00	525,937 98	36,657 47	23,000 00	240 00	62,975 05	74,209 17	2,500 00	
State Normal School	a 10 00	2 00	175 00	78 88	258,560 33	71,000 00	4,260 00	50,500 00	6,074 25	2,001 95	58,863 94	600 00	
Mining School		5 00	350 00	372 00	225,019 03			40,000 00			40,000 00		
School for the Blind	43 00	1 37		200 00	200,000 00			25,000 00		2,816 00	24,337 10	1,779 85	
School for the Deaf	b 187 32			187 32				53,000 00		17,238 40	67,566 15		
State Public School				109 35	229,254 76			35,000 00			38,061 83		
Industrial School for Boys		61		43 47	260,812 08			56,000 00		8,551 58	66,647 56		
Industrial Home for Girls		70		99 43	168,868 00			38,672 60		2,917 75	36,675 11		
Incorporated:													
Academy of Sacred Heart	60 00		60 00						3,000 00		3,000 00		
Adrian College	45 00	2 50	171 00		135,000 00	60,000 00	3,000 00		9,000 00	8,560 00	16,000 00	3,000 00	$25,000 00
Akeley Institute					75,000 00	3,000 00	300 00			7,900 00	8,000 00	1,000 00	
Albion College	21 00	2 25	175 00		150,000 00	200,000 00	12,000 00		16,000 00	5,000 00	33,000 00		
Alma College	30 00	2 25	150 00		80,000 00	80,000 00	4,800 00		2,800 00	6,400 00	14,800 00		
Battle Creek College	35 00	3 00	150 00										
Benzonia College													
Detroit College	40 00				160,000 00				8,000 00		8,000 00		60,000 00
Detroit Home and Day School	75 00	12 00	600 00		50,000 00				10,000 00	11,000 00	21,000 00	200 00	
Evelyn Industrial Institute	20 00	1 00	50 00	c50 00	7,500 00				178 50	3,995 75	3,863 18		7,243 09
German American Seminary	40 00				25,000 00				950 00	650 00	1,580 00	150 00	5,000 00
Hillsdale College	1 00	1 75	150 00		130,706 13	177,309 62	10,865 34		29 75	11,612 98	13,746 76		
Holland Christian Reformed Seminary	26 00	3 25	225 00		32,000 00				352 00	7,023 75	5,660 00		1,600 00
Hope College	18 00	2 00	175 00		115,000 00	123,499 90	13,664 85		3,300 00		14,000 00		10,000 00
Kalamazoo College	25 50	2 25	225 00		60,500 00	210,811 66	33,102 19		3,109 10	959 20	16,294 68		3,569 82
Michigan Female Seminary													
Military Academy			450 00		350,000 00								
Olivet College	30 00	2 25	200 00		189,851 14	106,235 68	9,028 40		5,262 75	12,255 15	39,809 16	2,000 00	1,466 65
Raisin Valley Seminary	26 00	2 00	100 00		5,000 00	20,000 00	1,200 00		800 00		2,000 00	100 00	
St. Mary's Academy	20 00	2 50	120 00		93,262 00				d 17,421 55	578 59	17,151 57	243 07	
Spring Arbor Seminary	18 00	3 00			10,000 00				1,500 00	900 00			

a Including room. b To non-residents. c Tuition only. d Includes board.

THE EDUCATIONAL INSTITUTIONS

OF

MICHIGAN

UNIVERSITY OF MICHIGAN.

EDUCATIONAL INSTITUTIONS.

JAMES B. ANGELL, LL.D.

PRESIDENT OF THE UNIVERSITY.

James Burrill Angell was born in Scituate, Rhode Island, Jan. 7, 1829. He is a lineal descendent of Thomas Angell, who came from Massachusetts to establish the Providence Plantations. He received his early education in the schools of his native town, but completed his preparation for college under the instruction of Professor Henry S. Frieze, who was then one of the proprietors and teachers of the University grammar school in Providence.

In 1845 he entered Brown University, and was graduated in 1849 with the first honors of his class. For the year following his graduation he was assistant in the library of Brown University and gave private instruction. In the autumn of 1850 he traveled through the southern states on horseback for the benefit of his health. In 1851 he spent some months in the office of the city engineer of Boston, and in December of that year sailed for Europe. While traveling on the continent he was elected Professor of Modern Languages in Brown University, and remained abroad engaged in study until the autumn of 1853, when he entered on the duties of his office.

In 1860 he resigned the professional chair to become the editor of the *Providence Journal*, then the leading newspaper in Rhode Island. He held this position until 1866, when he was elected President of the University of Vermont. In 1869, on the resignation of President Haven, he was offered the Presidency of the University of Michigan; but feeling that it was his duty to remain longer at the University of Vermont, he declined the invitation. Two years later, in 1871, the invitation was renewed and he accepted it. He is therefore completing the twenty-fifth year of connection with our State University.

In 1880 he was appointed by President Hayes chairman of a commission to negotiate treaties with the Chinese government, and also Envoy Extraordinary and Minister Plenipotentiary to China. The commission quickly completed two treaties, one a commercial treaty, and the other regulating Chinese emigration to this country. In October, 1881, he resigned his position as Minister, and journeyed slowly home by the way of Europe, arriving here in February, 1882, and resuming his duties as President.

In 1887 he was appointed by President Cleveland a member of a commission to settle the fisheries controversy with Great Britain, concerning our right to fish on the Atlantic coasts of Canada. Hon. T. F. Bayard, then Secretary of State, was chairman of the commission, and Hon. William L. Putnam, now United States Circuit Judge, was the other member. Joseph Chamberlain, Sir Charles Tupper of Canada, and Lord Sackville West, then British Minister at Washington, were the British commissioners. A treaty was negotiated, but it was not ratified by the Senate.

President Angell was recently appointed by President Cleveland member of a Deep Waterways Commission, which is charged with the duty of inquiring into the practicability of connecting our lakes with the sea by a channel deep enough for the passage of vessels of heavy burden. He has been chosen by his colleagues

chairman of the commission, and conferences are to be held by the commission with a Canadian commission appointed for the same purpose.

President Angell has been a frequent contributor to our leading magazines and reviews, and has gained a world-wide reputation for literary ability, profound scholarship, and wonderful personal influence in the great institution over which he so successfully presides.

THE UNIVERSITY OF MICHIGAN.

The University in its present form was provided for by the Constitution which was adopted at the time of the admission of the State to the Union, and by an Act of the Legislature passed March 18, 1837. Three departments were required by the Act:—the department of Literature, Science, and the Arts; the Department of Medicine; and the Department of Law. The wise comprehensiveness of the original plan was due largely to the familiarity of Rev. John D. Pierce, the first Superintendent of Public Instruction, with the Prussian system of education.

The University was opened for the reception of students in 1844. It encountered many difficulties in its early days. It had, however, from the first some very able and learned men in its Faculty. For a dozen years the number of students was small. In 1849 the Medical School was opened. In 1852 the first President was chosen, Rev. Dr. Henry P. Tappan of New York being elected to that office. He was a man of large attainments, of great energy, and of the broadest views of the functions of a University. Under his administration the Faculty was strengthened by the addition of a number of scholarly and efficient Professors, the Scientific Course in addition to the old Chemical Course was established, the Astronomical Observatory was erected, the Law School was founded, and a deep interest in the University was awakened throughout the State. The great development of the University in later years has taken place largely on the lines marked out by Dr. Tappan.

In 1863 he was succeeded in the Presidency by Rev. Dr. E. O. Haven, who had been previously a Professor in the Institution. During his term of office the so-called Latin-Scientific Course and a course in pharmacy were established, and the number of students rapidly increased. In 1869 President Haven resigned to accept the Presidency of Northwestern University.

From 1869 to 1871 Dr. Henry S. Frieze was Acting President. During his administration certain very important measures were taken. In 1870 women were admitted to all departments. In the same year, also, the so-called diploma relation between the University and the high schools was established. From that time students properly certified have been received into the University without examination from schools which have been visited by a committee of the Faculty and approved by them. Perhaps no more important step in aiding the schools and the University has ever been taken.

In 1871 President Angell entered on the duties of President and has served until now, by his tact and talent managing the great body of students and the affairs of the institution in a manner which commands the admiration of all. These twenty-five years have been years of marked development and rapid growth as shown by the following brief summary:—

In 1875 the Homœopathic Medical College and the Dental College were founded, and hospitals were erected. In 1876 the School of Pharmacy was organized as a separate department. The course in the medical and dental schools has been extended from two years of six months each,—the medical course to four years of nine months each, and the dental course to three years of nine months each. The Law Course has also been extended to three years of nine months each. The elective system and the "seminary" system of study have been introduced in the Literary Department. The Graduate School for advanced students has also been organized. A Summer School has been established, largely for the benefit of teachers. Scientific laboratories have been enlarged and multiplied. The State Hygienic Laboratory has been of great service to the public by furnishing, at nominal cost, analyses of waters, foods, etc. The new hospitals which have been erected have also proved to be a great public charity. Persons are received into them from all parts of the State, and many who were a public charge to the counties have been cured and restored to lives of activity. The Department of Engineering has been organized, and instruction is given in Civil, Mechanical, and Electrical Engineering.

RICHARD G. BOONE.

Some valuable gifts have been bestowed on the University. Hon. Philo Parsons in 1870 gave $3,000 to purchase the library of Professor Rau of Heidelberg, comprising mainly works on Political Economy and Statistics; Hon. James McMillan has purchased for the University the Shakespeare Library, containing 3,000 volumes; Randolph Rogers, the distinguished sculptor, gave to the Art collection casts of all his statuary, and Mr. Henry C. Lewis contributed his large collection of paintings and statuary; the Chinese government presented the whole of the exhibit it sent to the Exposition at New Orleans; Joshua W. Waterman gave $20,000 for the erection of the gymnasium; Miss Jean L. Coyl bequeathed $10,000, and Professor C. L. Ford $20,000 to the Library.

Since 1869 the State has regularly contributed to the support of the University, and in 1893 passed an Act levying a tax of one-sixth of a mill for its aid.

Last year the students numbered 2,864; this year they will number nearly 3,000, about one-half being children of farmers. (The fees are so low that persons of very moderate means can obtain here a good education.) The graduating classes number now a little over 700 students, more than those of any other American University. Harvard University alone has more students.

The University confessedly stands at the head of the State Universities of the country. Its methods have been largely imitated by the institutions in other states, and its services to Michigan cannot well be overestimated.

RICHARD G. BOONE, A. M., PH. D.

PRINCIPAL OF NORMAL SCHOOL.

Richard G. Boone was born in the village of Spiceland in Henry county, eastern Indiana. September 9, 1849. His parents on both sides and his ancestors for several generations were "Friends," his mother from western Ohio, his father from North Carolina. Driver Boone, the father, was one of the early Hoosier pioneers moving to the new State within ten years of its organization out of Indiana Territory and settling in the wilderness of Wayne county. Along with a company of other young men and a few families he left his native State as a protest against slavery, and early became identified with the abolition movement. Before and during the early days of the subject of this sketch, the home in Spiceland became a station on the "underground railroad." The boy was born and reared in an atmosphere of anti-slavery and strong religious sentiment.

His education was confined to that afforded by a village school, afterward developed into an academy and maintained under the control of and principally supported by the church. He finished the course at the Friend's Academy in 1871, when twenty-two years of age. Since about fifteen years of age he had been engaged as a teacher in the local sabbath school, and during the last three years of his attendance at the academy had spent the winter months in charge of country schools, carrying along the work of his class and passing examination with them at the end of the year.

The first teaching came just after the war, in a "butternut" settlement in southern Indiana. There were in the neighborhood several "refugees" from the south, some of whom entered school.

In 1871, immediately upon graduation from the village school, he became Principal of a Friends' Academy in Bartholomew Co., Indiana. The following year he was elected to a like position at the head of a seminary in Marion County, near Indianapolis. Both schools grew, adding to both their enrollment and the corps of teachers. He remained in the latter place three years. In 1875 he took charge of a township high school in Henry County, near his old home. Failing health made a resignation necessary after six weeks. In the spring of 1876, having partially recovered, he joined with a friend, Mr. T. H. Dunn, in a summer school for teachers at Clayton, Indiana. While here, and without his previous knowledge, he was elected to the superintendency of the city schools of Frankfort, Indiana. He remained here ten years, during which time the patronage of the schools and the teaching force were more than doubled.

In 1886, after long consideration of the question, the Board of Trustees of Indiana University decided to open a Department of Pedagogy in that institution, and Mr. Boone was invited to accept the place and to undertake the organization. It was a most delicate position and one whose future was exceedingly problematical. After a year he was given leave of absence for study and spent the period in study at Johns Hopkins University, chiefly under the direction of Dr. G. Stanley Hall. Returning to Indiana, he remained at the university until 1893, when invited to his present position at Ypsilanti, Michigan.

Even before 1876, the year of his Clayton school, he had conducted Summer schools for teachers and others at Spiceland, his former home, at Plainfield and Valley Mills; and, as early as 1872, he began regularly his work with teachers along pedagogical lines in the county Institutes of Indiana. This enterprise covered almost every county in the state and extended in time into Kentucky, Arkansas, Texas, West Virginia (in the Peabody Institutes), New York, Ohio, Pennsylvania, Illinois, Minnesota, and Michigan.

During his professorship at Indiana University, Mr. Boone lectured generally throughout the State, upon popular and educational themes, and for three years carried on systematic courses of University Extension lectures in cities of Indiana and Kentucky. He assisted in organizing the Reading Circles for teachers and pupils in Indiana, and was for five years one of the managing board—for a time its President.

Mr. Boone has been, since 1880, a member of the National Educational Association and for several years, of the National Council of Education, of the Superintendents' Section, and of the Normal School Section. He is at present chairman of the Council Committee on Normal Schools. In 1884 he received the degree of A. M., from De Pauw University, and five years later that of Ph. D., from the University of Ohio.

In 1889 was published by the Appleton's in the International Education Series, Mr. Boone's work on "Education in the United States," and three years later appeared a "History of Education in Indiana." Thus has Dr. Boone by indefatigable labor gained an enviable and extended reputation as a writer, a speaker, and an educator,—such a reputation as has brought additional standing to our state Normal School since he became its efficient head.

THE NEW PRACTICE SCHOOL BUILDING.

The accompanying cut represents the new quarters now in process of construction to be used by the Practice School at Ypsilanti. It will furnish much needed room and be a convenience both to the grades and the adult classes.

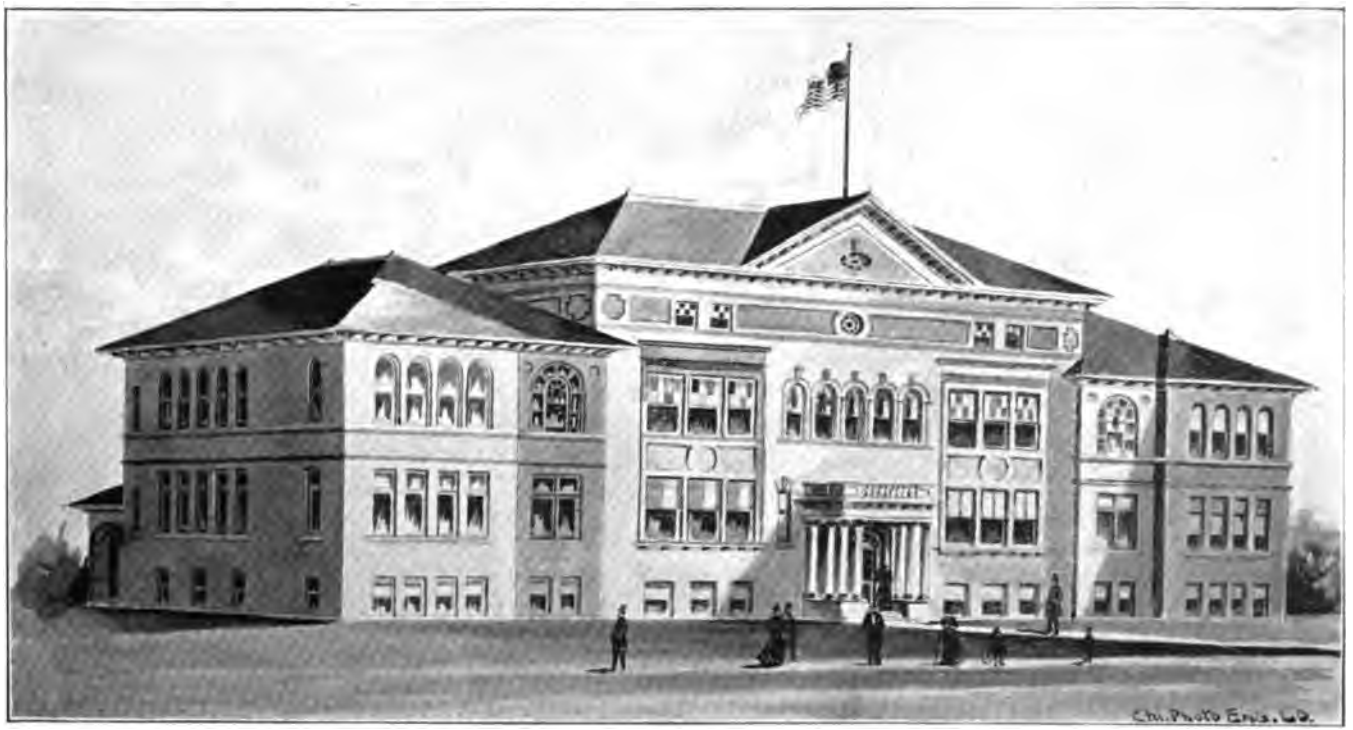
The wall materials are of buff brick with stone trimmings; the roof of tile. Within there will be one large school room for each of the eight grades and the kindergarten; and one or more small rooms for the use of each school into which classes may be sectioned for recitation purposes.

Besides the offices and convenient toilet and cloak rooms, there is also provided an assembly room large enough to accommodate the entire school for public occasions.

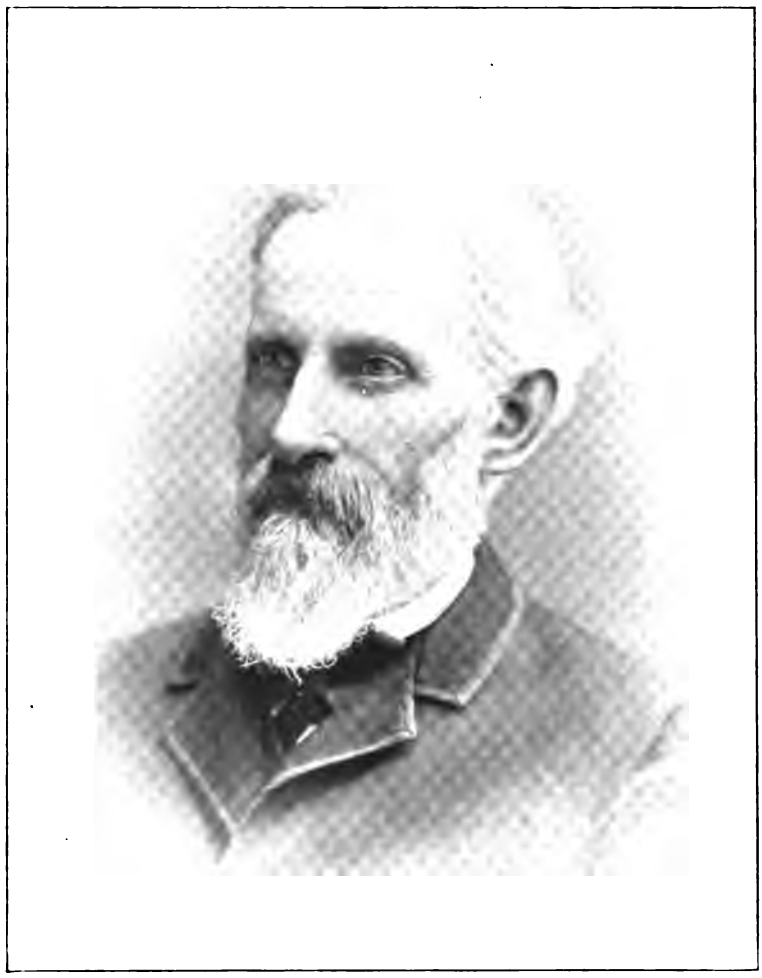
The building occupies a commanding site on the southwest corner of the old campus and faces a cross street looking down Summit street to the south. Its extreme outside dimensions are 170 feet front with a depth of 107 feet. It shows two stories above a high basement, is heated from the one common plant by which all the buildings are provided for, is well lighted both in the rooms and corridors, and is ventilated by a system of fans in the basement and wall flues.

It is meant that the building shall be in construction and arrangement, in material throughout and sanitary condition, a model of its kind among normal schools. The distribution of rooms is such that each schoolroom in nearly every case is merely one of a suite of two or three rooms adjoining and opening into one another. Those for the Kindergarten and Primary classes are made particularly convenient, while that for the highest grammar grade connects with two large rooms, together sufficient to accommodate seventy-five to a hundred pupils.

The training school has been a part of the Michigan Normal School since its opening in 1853. During most of its history its rooms have been more or less contracted and unsatisfactory. Everyone interested in the school will rejoice with



PRACTICE SCHOOL, YPSILANTI.



CHARLES FITZ ROY BELLOWS.

the corps of teachers in the possession of new accommodations and room for growth, in the opportunity for improved work and better results. The new building is a material and attractive addition to the School's equipment.

NOTE.—By authority of the State Board of Education a pamphlet for general distribution was recently published, containing a full account of the exercises of "Anniversary Day," which was celebrated at the Normal School in March, 1896, as also the full text of Prof. Putnam's address on that occasion, entitled "A Sketch of the Steps in the Evolution of the Teaching Profession in Michigan." Therefore, no history of the Normal School will be incorporated here.

C. F. R. BELLOWS.

PRINCIPAL OF CENTRAL NORMAL SCHOOL.

Charles Fitz Roy Bellows is descended from one of the oldest New England families. His earliest ancestor in this country was John Bellows, who came from England in 1635 and settled at Concord, Mass. The family name is associated with the growth of our country for a period of over two hundred fifty years, his ancestors having rendered zealous service in both the French and Indian, and the Revolutionary War.

The subject of this sketch was born at Charlestown, N. H., Oct. 27, 1832. His parents removed to Michigan in 1837, (when the territory was admitted into the Union), settling on a farm at Climax, Kalamazoo county. Here he attended the summer and winter school of the district until twelve years of age, and the winter term only until seventeen, working meanwhile on the farm. He then went to Olivet Institute, where he remained two years, boarding in the family of Hon. Oramel Hosford, then Professor of Mathematics and afterwards State Superintendent of Public Instruction. It was under Prof. Hosford's instruction that Mr. Bellows became imbued with his love for mathematical studies, and the stalwart and noble manliness of the man with whom he was so closely associated during those two years, had a powerful influence on the life of the young student.

During the winter of 1852-53 he taught the district school at Verona, Mich., for $17 a month, boarding around. Entering the State Normal School the following spring, he graduated in the class of 1855, having in the meantime taught a term of five months at Port Huron. In the fall of '55 he was engaged to organize and conduct the first graded school at Constantine, Mich., teaching there and at Mishawaka, Ind., for eight years. In the meantime, having by private study completed three years of a classical course at the University, he went to Ann Arbor in the fall of '63 and graduated with the class of '64.

The next fall he organized the graded schools at Decatur, Mich., remaining in charge three years. In 1867 he was elected the first county superintendent of Van Buren county, and he was also one of the original proprietors and editors of the *Van Buren County Republican*. In the fall of 1867 he was appointed by the State Board of Education to the chair of Mathematics in the Normal School, a position which he occupied for twenty-four years. Here unquestionably was the most important service of his long and useful life. Its history is written in the minds and hearts of thousands of students who knew him there.

Prof. Bellows was present at the organization of the State Teachers' Association, served several years as its secretary, and was president of the same in 1877. He has also enjoyed some prominence in the Masonic fraternity, being Grand Master of Masons in Michigan for the year 1833. He has written several mathematical texts on the following branches: arithematic, algebra, geometry, trigonometry, and surveying. But his activity has extended beyond mathematical studies alone, and in general institute work for many years he has taught, studied and lectured on themes of general educational interest.

In the summer of 1892 he accepted the heavy responsibility of founding and building up a Central Michigan Normal School at Mt. Pleasant. The tremendous difficulties involved in its successful accomplishment would have staggered a less determined man, and the history of this institution will commemorate the zeal, courage, and splendid enthusiasm of Prof. Bellows, as also the enterprise of the locality where it is situated. When that institution was accepted by the State in 1895, he was elected its first Principal, which position he still holds. Perhaps

no other living teacher has placed the imprint of scholarship and character upon the minds and hearts of so many men and women in Michigan as Prof. Bellows. In every part of the State his influence has been felt for a generation. His activity and experience have embraced every part of our school system, from the rural districts to the University.

CENTRAL MICHIGAN NORMAL SCHOOL.

The history of this school, it is conceded, has for its initial point the time when the idea of such an institution at Mt. Pleasant first entered the mind of Hon. Samuel W. Hopkins, a prominent resident of that city. This was in the early part of the year 1891. At this time, many towns and cities in Michigan were offering large inducements to manufacturers and capitalists to come there and locate their industries. Mt. Pleasant had already secured the location of a Government Industrial School for the education of Indians. This, no doubt, had some effect in turning Mr. Hopkins' thoughts in the direction of further augmenting the educational advantages of the city. Moreover, Mr. Hopkins was at the time prominently engaged in promoting the development and interests of the public schools of the city. Having been for a number of years a member of the Board of Education, he was then its president. In the facts above cited are probably to be sought the influences that suggested thhe thought of developing the importance of the city rather as an educational center than as a merely industrial or commercial one. The magnificent agricultural region surrounding, the exceeding beauty and healthfulness of the locality, and its central situation, were readily perceived as favoring considerations to the end in view. After having somewhat fully developed plans in his own mind, Mr. Hopkins communicated his idea to Mr. Charles M. Brooks, a prominent citizen, and at the time secretary of the Board of Education of the city. Mr. Brooks, with his characteristic public spirit, entered enthusiastically into the work of further developing plans and devising means for their execution. Mr. A. S. Coutant, editor and proprietor of "The Mt. Pleasant Enterprise," was the next one approached in the matter. He also entered into the movement with great energy and public spirit. All needed printing was gratuitous. Messrs. Hopkins and Brooks then waited upon Hon. J. W. Hance and M. Devereaux and laid the matter before them. They took hold of it with equal enthusiasm, and soon plans were laid and began to take public form among the citizens. Twelve men, namely, S. M. Hopkins, Charles M. Brooks, A. S. Coutant, J. W. Hance, M. Devereaux, I. A. Fancher, D. H. Nelson, F. D. Patterson, W. Doughty, G. A. Dusenbury, L. N. Smith, and M. Lower, joined themselves together to promote the enterprise. The Mt. Pleasant Improvement Company was organized, and one hundred forty-three citizens of Mt. Pleasant and vicinity became shareholders, at $25 a share, of the stock issued. All these have vigorously sustained the project through all its vicissitudes.

In July, 1891, Prof. C. F .R. Bellows of Ypsilanti having gone to Marquette to conduct a summer school, it was ascertained that he was contemplating the organization of a Normal School movement in Upper Michigan, and a representative of the Improvement Co. was sent thither for the purpose of interesting him in the movement at Mt. Pleasant. The result of this conference was that the people were encouraged to believe a Normal School could be here built up and eventually made a State institution. Fifty-two acres of land adjoining the city were accordingly at once bought at the price of $8,000. The sum of $500 was paid down of money obtained of Mr. Brooks, and a mortgage on the land was given for the balance. The land was immediately surveyed and platted by Prof. Bellows, as the Normal School addition to the city. A magnificent campus of nearly ten acres, embracing a beautiful grove of native trees, was reserved as the site of the proposed building. The remainder was divided into 224 desirable residence lots, with ample avenues, streets, and alleys. The lots nearly all found ready purchasers at $110. The rest have since been sold at $150 each.

Arrangements now began for the opening of the school. Rooms were secured on the second floor of one of the business blocks in the city and nicely fitted up for the purpose. Furniture was bought, and everything put in readiness for

CENTRAL MICHIGAN STATE NORMAL SCHOOL, MT. PLEASANT.

the opening, which took place on the 13th day of September, 1892. The teachers were as follows: C. F. R. Bellows, Principal—Psychology and Pedagogy; Mrs. Lydia H. Kniss, Preceptress—History and Literature; Stratton D. Brooks, Vice-Principal—Language and Mathematics; Milton W. Wimer—Physical and Natural Science; A. J. Cadman—Bookkeeping and Penmanship; Mary Sterling—Shorthand and Typewriting; D. Belle Murray—Piano and Organ; M. Heath Harris—Voice Culture and Singing.

The Improvement Company at once began preparations for the erection of the Normal School building, shown in the above cut. The corner stone was laid by the Grand Officers of the order of Knights of Pythias in Michigan, on the 15th day of November, 1892, Rev. H. S. Jordan of Lansing delivering the address of the occasion. The building was dedicated on the 21st day of June, 1893, and the address of dedication was delivered by Hon. Henry R. Pattengill, Superintendent of Public Instruction. The closing exercises of the school, at the end of its first year, were held in the new building, and occurred in connection with the dedicatory exercises, twenty students graduating at this time.

The work of the second year was along the same lines as the first, with the addition of a kindergarten; and a class of twelve was graduated on June 20, 1894.

With the beginning of the third year the character of the work was somewhat changed by the discontinuance of the Commercial Department and by the opening of a Model District School Department, for use as a School of Observation and Practice. This department consisted of about 40 children of the city, representing three or four primary grades, and was in charge of Miss Anna B. Preston, a graduate from the school the preceding year, who proved herself a most admirable teacher for the place.

To this brief outline of the history of the school during its first three years, two or three items may properly be added here. First, by courses of lectures during the winters of two years, and by two Fairs which have been held, together with concerts, socials and other entertainments, supplemented by many gifts of books, a good beginning has been made in the formation of a library for the school. The collection, though not very large, is, however, composed of a class of books for the most part indespensable to the students in the general work of the school. Second, the idea of the school from the beginning has been the preparation of teachers for the country district schools. Already over two hundred persons, after a longer or shorter period of attendance, have gone as teachers into the district schools of the surrounding country. Here is discovered the measure of the schools success within the short time since it was opened, and here the promise of its much larger usefulness in the near future. The school has so far stood for a strictly new departure in Normal School work; and so long as it shall continue to occupy the position it has assumed thus far, will the wisdom of its policy be more and more justified in the minds of the people of the State.

In the winter of 1892, a strong effort was made in the legislature to secure the adoption of the school by the State. Hon. S. W. Hopkins, then a member of the Senate, labored with untiring zeal to attain this end. He succeeded in securing the passage of his bill by the Senate, but the fates were against its passage by the House. Time, patience, and perseverance, however, accomplish all things; and, adopting this proverb, the citizens of Mt. Pleasant took a lesson in waiting and in patiently contributing to the support and success of the school. The hard times came on, pinching everywhere and everybody with ever increasing torture. Still there was no let up or flagging of courage in the prosecution of the work that had been undertaken. Having once put the hand to the plow, the people never stopped for a backward look. To supplement the receipts of the school from tuition, a large number of the citizens bought scholarships at $25 each, two or three sometimes joining in the purchase of a single one, and offering them as a gratuity to numerous young men and women who desired to attend the school, but had not the means to do so. Nearly a thousand dollars was in this way contributed to the support of the school.

Two years pass, and the legislature of 1895 is in session. Hon. Robert Brown of Isabella county is in the House, and Hon. Edwin Shaw of Newaygo in the Senate. A bill is introduced by each, offering on the part of the city of Mt. Pleasant the donation of the buildings and grounds to the State for the purposes of a State Normal School. After a prolonged and vigorous struggle with opposing localities, each bill is passed by the body in which it originated, and then the Senate bill is taken up and passed by the House. The signature of Governor John T. Rich was duly affixed, and the Central Michigan State Normal School

became an accomplished fact. Within thirty days after the signing of the bill, the citizens of Mt. Pleasant freed the property of all incumbrance and passed over a deed into the hands of the State Board of Education. The bill making the school a State institution, contained, however, no provision of means for the maintenance of the school. The citizens, therefore, pledged the necessary amount over and above receipts from tuition to carry on the school until an appropriation by the State should become available. It is but just to say in this connection that too much praise cannot be accorded to Judge Peter F. Dodds for his efficient and unwearied services in soliciting and collecting a large part of the money required for the success of the enterprise, as well as for valuable counsel and assistance in many other ways.

Immediately on the transfer of the title of the property to the State, the State Board of Education assumed charge of the school, and began the organization of its future work. A course of study was arranged and the following persons appointed as teachers for the coming year: C. F. R. Bellows, Mrs. Lydia H. Kniss, Anna Moss, and Fred L. Keeler. By arrangement with the public school board of the city, a department under the immediate charge of Miss Gertrude Robinson, was provided for use as a school of observation and practice.

The school opened under State auspices on the 11th day of September, 1895, and from this date its future history is yet to be written.

J. L. SNYDER, PH. D.

PRESIDENT OF AGRICULTURAL COLLEGE.

On the eleventh day of February, after months of anxious investigation and consultation, the Board of Agriculture, by a vote of six to one, elected to the vacant presidency of the Michigan Agricultural College the subject of this sketch. The deliberateness of the Board's action, their painstaking thoroughness in examining into the relative merits of a host of candidates, and the comparative unanimity of the final action, make the choice conspicuously complimentary to the recipient of the honor, and serve as a guarantee to the State that in this selection no interest has been forgotten and no risk has been taken.

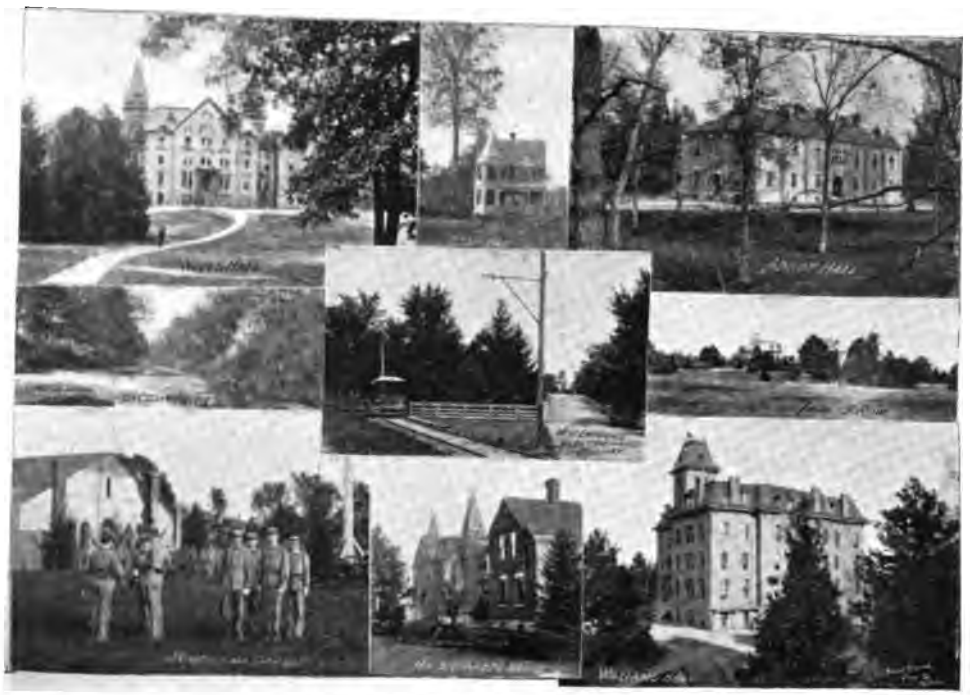
Events since the election more than demonstrate the truth of the above inferences. President Snyder has taken hold of the college with an intelligent appreciation of its needs and capabilities, an earnestness and steadiness of purpose, and a quiet self-possession and resourcefulness that demonstrate him to be a tried and skilled man in all the lines of his work—a thorough master of the situation. Faculty and students have received him with enthusiasm, and an era of increased prosperity and greater practical usefulness seems to be dawning for the college.

Dr. Snyder was born on a farm in Butler County, Pennsylvania, and remained there until, at nineteen years of age, he went to college. His education has been thorough. It began in the country schools of his native county, extended through three years in the preparatory department of Grove City College, a four years' academic course in Westminster College, Pa., a graduate course in his Alma Mater crowned with the degree of Ph. D., and extensive tours in this country and in Europe.

His career outside of college walls, as a worker, a man among men, has been singularly successful. He has devoted himself entirely to school work, especially to the training of the eye and hand as well as the mind. His record includes the establishment of a normal school, now enrolling over five hundred pupils; the introduction of a manual training department into the largest school in the city of Allegheny, and the emphasizing of science, or "nature study" in his whole school work. Too much stress cannot be laid on his success in the last two directions. The industrial features of the work in his school in Allegheny included sewing and cooking for the girls and the different lines of manual training for the boys, and were the result of earnest convictions concerning the educational value of manual labor. The Allegheny school is said to have the finest and best equipped industrial department in connection with any grammar school in the United States. In those schools, too, the first thing that attracts the attention of the visitor is the work in

JONATHAN L. SNYDER.

AGRICULTURAL COLLEGE.



AGRICULTURAL COLLEGE.

ABBOT HALL—WOMEN'S DORMITORY.

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Dr. Snyder has always been in command of men; he is a natural leader. He was early elected superintendent of the schools of his native country. Here, burdened with the direction of over three hundred teachers and fifteen thousand pupils, he did remarkable work in systematizing and grading the studies of the schools and in increasing the efficiency of the teachers. His work in this position drew attention, and he was soon called to the principalship of the fifth ward school of Allegheny, with over thirty teachers and fifteen hundred pupils under his care. In this position he won an enviable reputation and standing among the teachers of the State.

His life has been largely spent on the farm: he owns a farm; understands, from long experience, farm life and farm conditions; and is in thorough accord and sympathy with the farmers' needs.

AGRICULTURAL COLLEGE.

The Michigan Agricultural College is a school that has a history of nearly forty years. It served Mr. Morrill as a practical example of the working of his theories when he was fighting the first battles in congress for appropriations to agricultural education. It has been used as a model for many of the agricultural colleges of other states and for those of at least two foreign countries. Its graduates are found as professors in the colleges and universities of twenty-nine of the states and territories of this union, and are serving in high governmental offices in Washington, in Australia, and in Japan. It has taught teachers of farming as well as actual farmers scattered here and there all over the State. Wherever there are bodies of farmers gathered, there, among the most active and influential members, are graduates of this college.

While by origin and by its present official title the college is purely agricultural, yet in fact and in accordance with the requirements of the endowment fund, the college has a clearly defined mechanical course equal in extent, in definiteness of purpose, in strength of equipment, and in adaptation to its aims, with the agricultural course. A well-manned and equipped laboratory and work-shops, give the best facilities for training in mechanics and mechanical engineering. The popularity of this course has steadily grown until now it has nearly as many students as the older agricultural course. It turned out its first graduates in 1888, and while they are not so numerous as those of the agricultural course, they have taken equal rank in the extent and thoroughness of their equipment, in the importance of the positions they have won, and in devotion to their profession and their Alma Mater.

By the endowment derived from the Morrill Acts of 1862 and 1890, the State has been relieved, for some years, of the burden of providing funds for the running expenses of the college, and the small appropriations asked for from the legislature have been for such things as repairs and improvements on the real property, for which, by the terms on which the Morrill grants were accepted, the State bound itself to provide. The permanent improvements thus provided year after year, make the plant one of the most complete and extensive of the kind in the Union. It inventories over $500,000 in value, and comprises laboratories, apparatus, and collections that, in some respects, are not duplicated elsewhere.

The landed estate, situated on the banks of the Cedar river and at twenty minutes distance by street car line from Washington avenue, Lansing, comprises 676 acres. Of this amount of land about 330 acres are used for farm experimentation and instruction; about 230 are in original forest; and the lawns, building sites, orchards, and gardens take up the remainder. The campus is, during the summer, a place of almost ideal beauty. Quiet nooks, suggestive of profound sylvan solitude, alternate with the life and bustle of the more frequented walks. Winding stone footways through beautifully kept lawns, houses embowered in shapely trees and vines, rustic bridges over rippling waters, make a stroll over the grounds a constantly changing panorama, a series of surprises each more charming than the other. In

the midst of all of this quiet, dreamy beauty, the most practical, energetic, thoroughly utilitarian training is given. Scattered about amidst picturesque surroundings are some thirty buildings, not including minor structures. The organic center of this group is the library and museum building, where are placed the offices of the president and the secretary. In this building the student forms his organic connection with the school; here he comes for advice, for encouragement, for warning perhaps; here, too, he receives and deposits his daily mail. The library consists of some 18,000 bound volumes and 4,000 pamphlets, all well and carefully selected. There is little or no rubbish in this collection. Everything is available, living, of real, actual interest. As a working library on scientific subjects, the collection can scarcely be surpassed in the State, while the subjects of general literature, history, and civics have been by no means neglected in buying the books.

The college stands for the idea of learning to do a thing by doing it, and hence the large number of laboratories and their dependencies. First is the Agricultural laboratory, which consists of the farm, the barns, and the building which is designated by that specific name and in which all the work of the agricultural course focuses itself. Next is the Horticultural laboratory, with its dependencies of fruit and vegetable gardens, orchards, forcing houses, conservatories, etc. After these come a series of equally important work-shops; viz., the Chemical, the Botanical, the Zoological, the Civil Engineering, the Mechanical, the Physical, the Veterinary laboratories—all conveniently housed, well equipped, and strongly manned. The library and the lecture rooms may be called the laboratories of the departments of Mathematics, History and Political Economy, and the English, German and French languages; for, throughout all training at the college, the same pedagogical principles and the same basal methods are embodied.

The education given at this college is plain, simple, practical, yet systematic, progressive, rounded, and thorough. It is a training of the whole man, yet it is also toward a specific end. It aims to train head, hand, and eye; to develop the youth into true manhood, into worthy citizenship, into success as farmer or mechanic.

The coming year will witness several radical changes in the policy of the college. It has been determined to introduce a preparatory course where may be made up the deficiencies of those whose preparation on one or more studies has been weak; to lay out for the winter term special six weeks' courses in dairying, in live stock husbandry, in soils and crops, in fruit culture, in market gardening, and in floriculture; and, most radical of all, to introduce a course for ladies, parallel with the agricultural course for boys. It is believed that this ladies' course, including as it will, the same solid, practical features of training as are found in the boys' course, together with music, painting, and a full course, theoretical and practical, in domestic economy, will supply a real need in the State and will materially add to the popularity of the college.

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On May 6, 1847, at East Livermore, Me., was born M. E. Wadsworth, a direct descendant of Captain Samuel Wadsworth, among whose descendants are found many names famous in the annals of New England's history and literature. Capt. Samuel Wadsworth, who was killed on the bloody field of Sudbury in 1676, was the son of Christopher and the father of Benjamin Wadsworth, the ninth president of Harvard college. Henry Wadsworth Longfellow, on his mother's side, was also a descendant of the sturdy old Puritan, and it is probable that the subject of this sketch is indebted to his Puritan blood for many of his strong and admirable traits of character.

Dr. Wadsworth's early life was passed upon his father's farm, and his first education was obtained in the district schools in which he commenced to prepare for college; he finished his preparatory studies at home by himself while working upon the farm, and also at Bates' College and Lewiston Falls Academy. He entered Bow-

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doin College in 1865 and was graduated in the regular course in 1869. From his sixteenth year, during his preparation for and throughout his life at college, he taught from one to three terms a year in the public and high schools of Maine and New Hampshire, maintaining, withal a good rank in his class at Bowdoin.

After graduation he taught for four years in the graded schools and academies of Minnesota and Wisconsin. In 1873 he went to Harvard University in order to pursue graduate studies in the natural and physical sciences. In the same year he was elected Professor of Chemistry at the Boston Dental College, which chair he resigned in 1874, to accept an instructorship in mathematics and mineralogy at Harvard. He spent the summer of that year engaged upon the geological survey of New Hampshire.

In 1872 he received the degree of A. M. from Bowdoin College, and also from Harvard University in 1874 for work done and examinations passed in mineralogy. In 1879 he received the degree of Ph. D., from Harvard, presenting a thesis on "The Classification of Rocks." In 1884-5 Dr. Wadsworth spent much of his time in England and on the Continent in studying the advanced modern methods of petrographical research with Prof. H. Rosenbusch, and in visiting the various universities, thus familiarizing himself with the methods of instruction and becoming personally acquainted with the leading men in his specialties. He was the first to give instruction in microscopic lithology in the United States, so far as known, beginning with a course in Harvard University. In 1885 he was elected Professor of Mineralogy and Geology at Colby University, a chair then but recently established; and during the following two years he was engaged in developing this department and in revising the course of study in the University. In 1886-87 he served as assistant geologist in the Minnesota Geological Survey, and published a report on the lithology of a part of the state.

He was elected to his present position in 1887, at which time the Mining School was so poorly equipped that not even a course of study had been planned. Under his management the school has been fully organized, buildings erected, and an excellent equipment procured. Dr. Wadsworth found in this work most congenial employment, and, organizing the school on a new and independent plan, has seen the institution emerge from obscurity into prominence. Last year more students were graduated from this school than from any other similar institution in the country, and since 1890 it has had the largest number of under-graduates pursuing that course of any institution in the country.

In May, 1888, Dr. Wadsworth was appointed State Geologist of Michigan, which position he held until 1893; and in addition to his duties as Director of the Mining School, he also holds the chair of Mineralogy, Petrography, and Geology. He is a Fellow of the Geological Society of London and a member of the Geological Society of America, of the American Society of Naturalists, the American Institute of Mining Engineers, the Boston Society of Natural History, and many other scientific bodies. He is one of the editors of the American Geologist and has published many valuable articles,—studies in petrography, geology, ore-deposits, meteorites, and educational subjects, in all of which he has shown himself an original and independent thinker.

As an educator he is widely known. In 1895 he prepared and introduced into the Mining School a complete system of elective studies, which was unanimously adopted by the Faculty and the Board, and has been found very successful in practice. This is a pioneer experiment, being the first full elective course ever adopted by any engineering school in the United States.

Personally Dr. Wadsworth is of a frank, open nature, with an uncompromising hatred of all shams. He is possessed of notable powers of organization, and his perseverance enables him successfully to carry out the undertakings he attempts. His habits are methodical, as behooves a man of scientific attainments, while the fact that he is a strict disciplinarian and yet very popular, attests to his justice and goodness of heart.

THE MICHIGAN MINING SCHOOL.

BY M. E. WADSWORTH.

The Michigan Mining School was established as the fourth and last of the institutions of Michigan which are devoted to higher education. From the moment of its inception its single object has been to send out men who are qualified to take active part in the development of the mineral wealth of our State and Nation, and any subject of study which is essential to this end will not be found wanting in its courses of instruction.

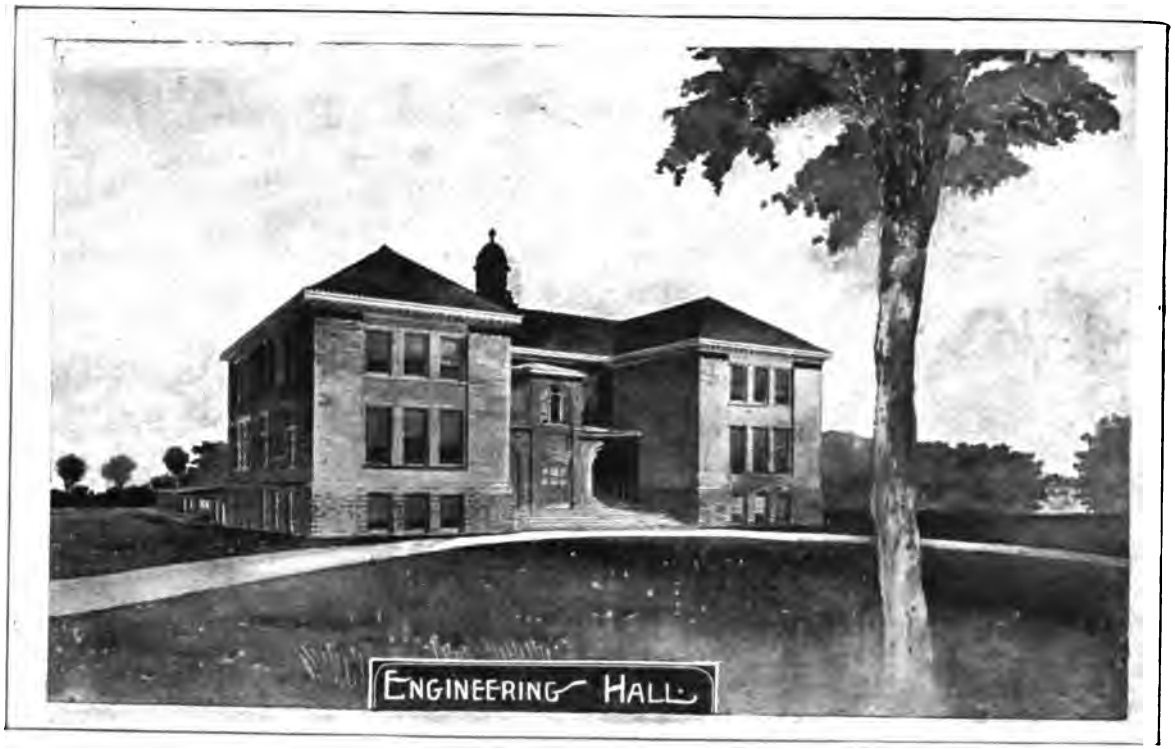
The school has been singularly happy in its location. It is an axiom of modern education that any school which is to obtain the greatest return for the money and energy spent in establishing it, must be situated in a region which shall from its very nature serve, free of all expense, as a part of the real equipment of that school. This can be so only when the district presents for the daily observation of the student the most extensive and "up-to-date" practical applications of the subjects which are taught in the school.

Mechanical and electrical engineering can be most advantageously studied only in a locality containing machine works, manufactures, mills, lighting and power plants; and civil engineering can be most thoroughly acquired in a school which has in its immediate vicinity numerous examples of modern constructions in the form of bridges, railways, and their appurtenances, large buildings and establishments which design and produce the material for them. Similarly, mining engineering can be most efficiently taught only in a district containing numerous mines which are worked on the largest scale and in which scientific and economical considerations are given full sway.

From this point of view the Michigan Mining School has, more than any other school of mines in America, been fortunate in its location. Within a radius of eleven miles from its doors are situated several of the largest, deepest, and most successful mines in the world. The most powerful and stupendous machinery ever employed in mining is here in constant use and always open to the inspection of the student. The aggregate horse power of the engines used by only two of these mining companies exceeds the grand total of all the engines used in the gold and silver mines in the United States in the halcyon days of 1889; or far more than double all those employed in the grandest spectacle this earth has ever seen—the World's Fair in 1893.

The mines of the Marquette, Menominee, and Gogebic iron ranges are within a few hours ride of the school, and furnish a most efficient means of illustrating a large part of its teachings. The output of the various mines and other mineral industries in the Upped Peninsula is so enormous that its yearly value is about $70,000,000, ranking Michigan, among the States of the Union, second only to Pennsylvania in the value of its mineral products.

The further development of this vast industry requires men who are thoroughly trained for this special work, and to meet this requirement the Michigan Mining School was established. It was fortunate for the school that its founders realized at the start that, to fulfill its mission, it must not waste its energies in the vain attempt to teach branches foreign to the object of the institution, and which were already well taught by other schools maintained by the State. In consequence they determined that this school should confine is attention wholly to mining and the *subjects relating thereto*: hence the course is designed to teach the student to conduct explorations in the forest and field; to distinguish the useful minerals and rocks; to understand the geological principles that govern the formation and association of useful mineral products, and to determine approximately their values; to study ores, building stones, limes, mortars, cements, coal, salt, gypsum, petroleum, natural gas, clays, fertilizers, gems, and useful vegetable products; to survey, map, and lay out the ground, the railroads, tramways, and towns; to select or design hoisting, transportation, power, and light plants; to design the mills, furnaces, docks, dams, bridges, shaft, and rock houses, and other structures; to determine in each case which is the most suitable method for opening and conducting a quarry or mine, and of timbering, ventilating, and draining it; to assay, concentrate, and smelt ores; to investigate the strength and other properties of engineering materials, that designs may be intelligently worked out; to make working drawings to illustrate fully these designs; to understand the most



MINING SCHOOL.

MINING SCHOOL.

economical methods of generating and using steam; to study in detail engines, pumps, boilers, and other machinery, and the methods of operating, testing, and repairing them; to master the principles of electricity and its generation, storage, transmission, and use as an illuminant and source of motive power; to study hydraulics, and its various application in civil affairs and hydraulic mining; to understand mine management and accounts; in short, to train men to be of real use in any line of work connected with the winning and reduction of mineral products. Such work naturally arranges itself along various clearly defined lines in each of which the training may proceed to almost any length; hence the branches of study which here most naturally resolve themselves into specialties are drawing, chemistry, metallurgy, mechanical, civil, electrical, and mining engineering, ore dressing, and geology.

The range of subjects bearing on the mineral industry is extremely wide; and this, coupled with the fact that all men are endowed with a natural aptitude for some lines of work, while wholly unfitted for others, and the further fact that circumstances beyond control frequently force men into particular occupations and deprive them of the opportunity to prosecute a full course of training,—all conspire to demonstrate the correctness of the modern educational view, viz., that a rigid set course of instruction in higher education is now out of date, and that the student must have some liberty in selecting the studies which are to enable him to cope with his life work. This fact has been long recognized here; and the Mining School has squarely met the issue by adopting an elective system so designed that, while the student is allowed to choose the main lines of his work, he is compelled by the proper sequence of studies to take up such subjects as are essential to a broad and thorough engineering training. Further, in the effort to save the valuable time of young men, the school work is continued during forty-five weeks a year instead of thirty to thirty-six, as in most institutions. This enables the student who wishes to do so, to accomplish as much in three years as elsewhere he would ordinarily do in four.

The Mining School was established by an act of the Legislature approved May 1, 1885, and was opened for the reception of students on September 15, 1886. Its inception, establishment, and to a great extent its appropriations, have been due to the foresight, energy, and executive ability of Hon. Jay A. Hubbell of Houghton, who has spared no labor in endeavoring to accomplish everything essential to the success and prosperity of the institution.

In 1886 Albert Williams, Jr., a graduate of the College of New Jersey, was elected as principal and had charge of the school until he resigned during the summer of 1887, when Dr. Wadsworth, the present Director, was chosen.

The first classes were taught in rooms located on the top floor and in the basement of the "Fire Engine House" of the village of Houghton. Four additional rooms in the Odd Fellows Building were secured in September, 1887; but the continued growth of the school made it neccessary to vacate the latter quarters during the summer of 1888, and to replace them by others obtained in the Roller Rink Building, now the Armory Opera House. In May, 1889, the school was moved into the building now known as Science Hall. This Hall was erected by the State on land donated by Judge Hubbell, but it was even then well known that the building was too small for the necessary work of the school. In 1890 ore-dressing works were constructed and there was added in 1892 a small structure containing a furnace for roasting ores. As the school grew faster than its most sanguine friends had any reason to hope, further buildings became necessary, and during 1894-95 the State erected another large one to accommodate the departments of drawing, and mechanical and electrical engineering, and the offices and lecture rooms of the department of civil and mining engineering. The equipment of the institution has also been increased so far as its funds have permitted, and the total school property, as inventoried in August last, amounted to $216,966.79.

In 1886, a course of instruction of two years' duration was announced, but was not prepared; indeed, the educational side of the school was not regularly organized until the school year 1887-88. Since then the curriculum has been steadily broadened and perfected in detail. In 1889 a three-year course was adopted, and in 1893 this was changed to four years. The full elective system went into successful operation in 1895, and has thus proven entirely satisfactory to instructors and students alike.

The number of new students who entered, the total enrollment, and the number of graduates sent out for each year of the school's existence, are as follows:

	1886-7.	1887-8.	1888-9.	1889-90.	1890-1.	1891-2.	1892-3.	1893-4.	1894-5.
New students	23	15	16	15	46	40	45	17	49
Total attendance	23	29	40	35	61	78	101	82	94
Graduates	--------	7	6	5	4	0	18	17	22

These students were from twenty-four different states of the Union and from the following foreign countries: Canada, Cuba, England, Germany, Japan, Mexico, New Brunswick, Peru, and the South African Republic. The large majority of the students came from Michigan, as would naturally be expected from the magnitude of the mining interests of our State.

The Board of Control is now composed of the following members:

	Term expires.
James Renrick Cooper, Hancock	June 9, 1897
Preston Carpenter Firth West, Calumet	June 9, 1897
Judge Jay Abel Hubbell, President, Houghton	June 9, 1899
Hon. Thomas Bree Dunstan, Hancock	June 9, 1899
Hon. John Monroe Longyear, Marquette	June 9, 1901
Alfred Kidder, Marquette	June 9, 1901

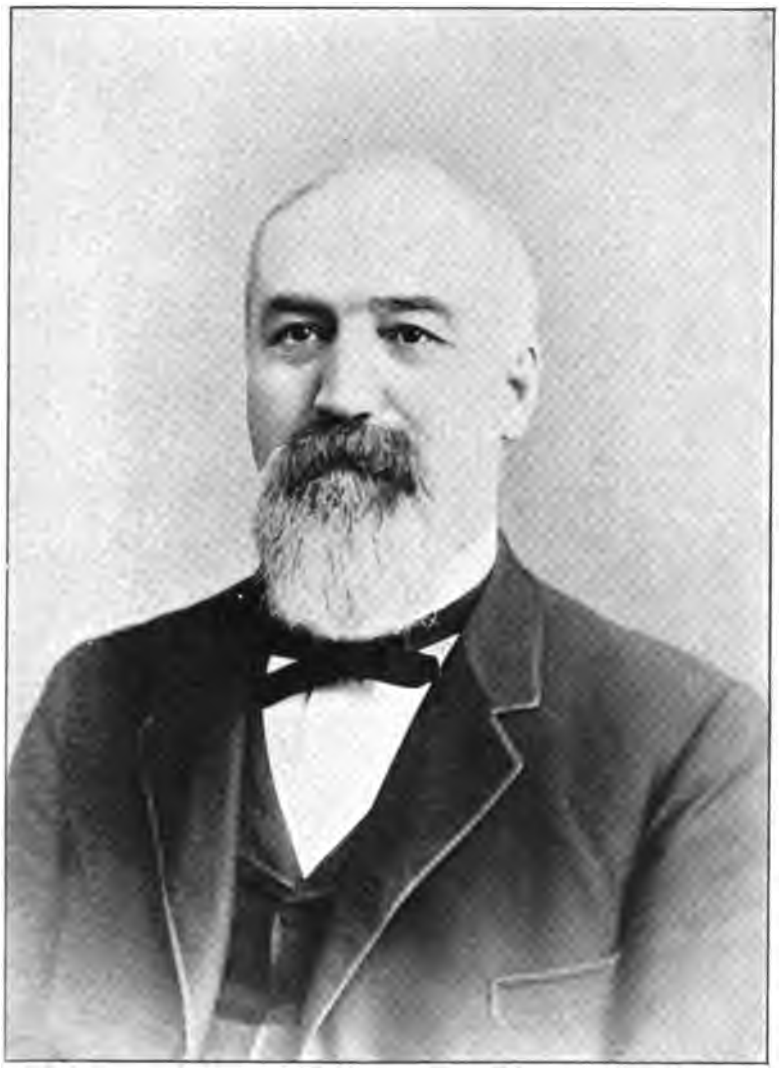
Each of these gentlemen has rendered frequent and valuable services; Mr. Kidder has been a member of the Board since its inception; Mr. Longyear stands next in length of membership and is closely followed by Mr. Hubbell. The generous donations of Mr. Hubbell have already been referred to, and in addition to these Mr. Longyear has made liberal contributions of money, machinery, and other material required by the school.

No Mining School in America has ever had such a phenomenal growth as this one, whether viewed from the standpoint of attendance of students in mining engineering, in the thorough and practical nature of the education given, or in the standing the school has won at home and abroad. Since 1890 is has been recognized as one of the leading institutions of its kind in the world, and it will ever strive to retain this position by hard work and true merit, if those for whose benefit it was established will do their duty toward it.

DENISON C. THOMAS, A. M., PH. D.

PRESIDENT OF ADRIAN COLLEGE.

The eighth president of Adrian College was born in Millcreek Township, Erie Co., Pa. His early life was passed amid the duties of the farm, where he acquired the robust strength of body which stood him in good stead in his after years of arduous mental toil. He attended the common schools of his native county and soon began the profession to which the best years of his life were destined to be devoted, teaching for two winters in Erie County at the towns of Springfield and Fairview. He made a thorough preparation for college in Girard Academy, and, taking advanced standing, entered Brown University, where he completed the Sophomore year. In 1859, with the expectation of engaging in the legal profession, he joined the law school at Ann Arbor and continued there for one year; but at the expiration of that time, feeling dissatisfied with the incomplete condition of his literary course, he decided to matriculate at Adrian College. He was confirmed in this decision by the advice of Dr. Asa Mahan, then president of Adrian, an instructor of profound



DENISON C. THOMAS.

ADRIAN COLLEGE.

sagacity of mind and sanctity of life, and one who was destined to exert a strong influence upon the life and character of the young student. In 1861 he graduated in the Scientific Course, representing his class as valedictorian on Commencement Day. Continuing at Adrian another year, he took the Classical degree.

A tour abroad, in Germany, France, and England, broadened his views and gave permanence and finish to the studies he had already mastered. During 1863 he was associated with the corps of instructors of Adrian College as assistant in mathematics. A call was given him, in 1866, to the Chair of Mathematics in Marshall College, Henry, Ill.; but it was declined, as he still hesitated to make teaching his life work.

For a period of six years (1867-73) he was employed as a mechanical engineer and draughtsman; but in 1874 the die was cast for pedagogical work, and he accepted the principalship of the Fairview schools, Pa. In 1878 came an unsolicited call to superintend the schools of Union City, and during the years 1880-92 he acted as principal of the Mansfield State Normal School. It was during these years that he made the enviable reputation that goes with indomitable courage and unflagging zeal. When he began his labors at Mansfield, the outlook was certainly discouraging and unfriendly. The school was deficient in buildings, furniture, and all the paraphernalia necessary successfully to conduct work by modern methods. As a result the attendance was far below the average, and the support from patrons feeble and lukewarm. Today the Normal School of Mansfield is the most flourishing in the state, and takes rank with any of its class in the country, thanks to Dr. Thomas, who successfully lobbied appropriation after appropriation through the legislature at Harrisburg, by means of which he erected magnificent buildings for the school and thoroughly equipped it with the most modern appliances for all branches of study.

The honorary degree of A. M. was conferred upon him by Lafayette (Pa.) College in 1884, and the degree of Ph. D. by Heidelburg (O.) University in 1888.

During the summer of 1893 he was called to the Presidency of Adrian College, the trustees of this institution feeling deeply that, in the condition of the school at that time, a man of Dr. Thomas' energy and sagacity would be its surest guaranty to advancement and success. He was loath to accept, having other and brighter prospects in view, but loyalty to *Alma Mater* finally prevailed. It is barest justice to say that, during the short time he has been presiding at Adrian, the outlook has wonderfully improved. Dr. Thomas saw at once that the college needed more buildings and greater facilities for carrying on the best work by the most modern methods. The result is evidenced in a large, three-storied building, Metcalf Hall, named after the principal donor, Mr. David Metcalf of Adrian, an honored trustee of the college and a merchant of sterling business worth in the city.

Always busy, always on the move, Dr. Thomas does not stop when one improvement is completed. Scarcely has one venture been put through and proven before he leaves it for something new. The college has been fitted out with a spick and span steam plant, most effective and economical in its working. With Dr. Thomas at the head, Adrian College is rapidly advancing to the front and keeping pace is rapidly advancing to the front and keeping pace in modern improvements with in modern improvements with that high standard of scholastic excellence with which it has always been credited.

ADRIAN COLLEGE.

This college, located at Adrian, the county seat of Lenawee County, was organized under the auspices of the Wesleyan Methodist connection March 22, 1859, in accordance with the provisions of an act passed by the Legislature entitled: "An Act to Provide for the Incorporation of Institutions of Learning." It is one of the recognized institutions of the Methodist Protestant church, having been transferred Feb. 28, 1868, in due and legal form by the trustees then in possession, to a new Board of Trustees, nominated by and representing a corporation known as the "Collegiate Association of the Methodist Protestant Church." This body, in taking possession of the college and its appurtenances, assumed all the financial liabilities of the insti-

tution, which at that time amounted to more than $30,000, and entered into obligations to endow it in a sum of not less than $100,000. From a recent report adopted by the trustees, the value of the property of the institution, including endowment, grounds, buildings, etc., is estimated at $225,000.

The college buildings number five: North Hall, the Cabinet Building, Chapel, South Hall, and Metcalf Hall. The last named was built in the summer of 1895. These buildings are located on a plot of twenty acres on the western edge of the city, easy of access from the two depots by means of street railway and commanding a beautiful view of the city and surrounding country.

Metcalf Hall contains in its basement a steam plant which heats the entire college. Its first floor is devoted to a dining hall and kitchen pronounced by competent judges one of the best college culinary departments in the country. The second floor contains thirteen rooms used by the Music Department. About eighty pupils register in this department each year. The third floor constitutes the ladies gymnasium, and an athletic field has been made back of the building at an expense of a thousand dollars, said to be the finest in the State.

At present four schools are included under the management of Adrian College: The College of Literature and Arts, the School of Music, the School of Theology, and the Preparatory School. These associated schools are under the control of a board of thirty trustees, twenty-four of whom are elected by the General Conference of the Methodist Church, and six by the Alumni Association.

The course of study at Adrian, as can be shown by the catalog, is and always has been of the highest grade, and will compare favorably with a like course in any other institution in the country. Its music department especially, including piano, pipe organ, violin, composition, and voice, is constantly enlarging and takes rank with the best in the State. The college corps of instructors numbers fourteen. The degrees, Bachelor of Science, Bachelor of Arts, Bachelor of Philosophy, Bachelor of Letters, Bachelor of Divinity, and Bachelor of Music, are conferred upon pupils completing appropriate courses of study. A teacher's course is provided in connection with the college, and certificates are granted those fulfilling its requirements. A thorough system of preparatory work is also taught, leading up to the Freshman year and covering the advanced work of the common schools.

The college has a finely equipped reading room, containing 5,000 volumes and the leading periodicals and newspapers. Three Literary Societies meet weekly, each having its own library.

Religious services are held in the Chapel every morning. The Y. M. C. A. and Y. W. C. A. are permanent factors in college life and meet regularly every week. The policy of the authorities has ever been to avoid police surveillance and put students upon their honor as regards their behavior, and the system works admirably. Few cases of discipline occur.

It is the intention of the present administration to remodel and modernize the chapel, giving greater and more comfortable seating facilities and improving the acoustic properties of the hall; also to erect a new library building in the near future.

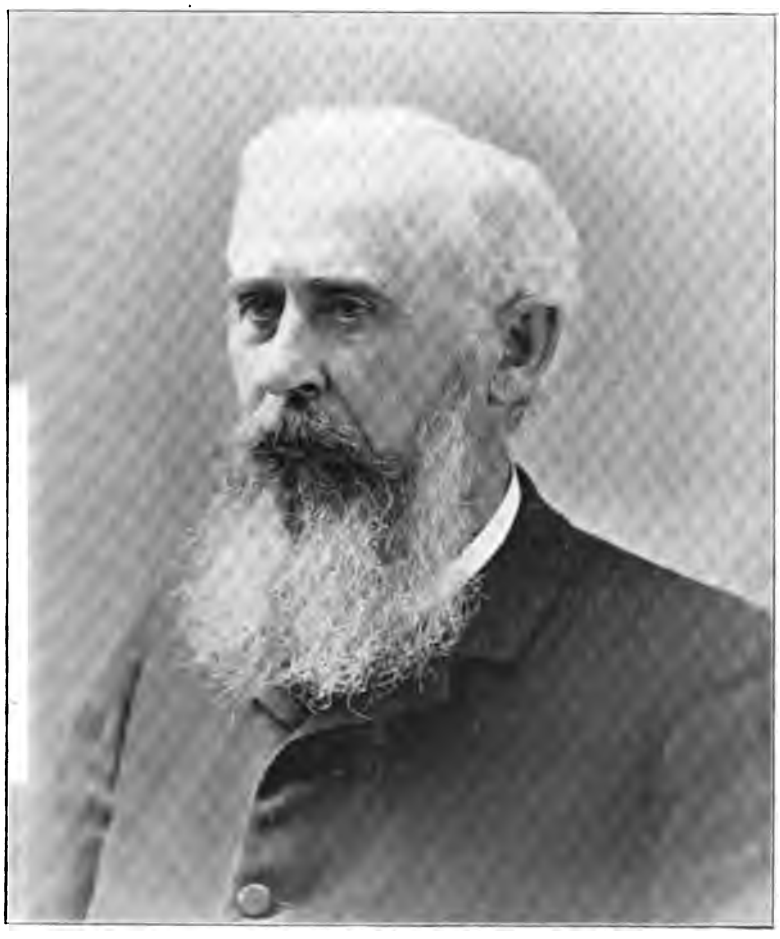
Adrian College reverts with pride to the fact that nine of its fourteen instructors are active members of its Alumni Association. Its graduates are numerous, and many of them have attained to honorable and eminent positions in life.

LEWIS RANSOM FISKE, A. B., D. D., LL.D.

PRESIDENT OF ALBION COLLEGE.

The Fiske family came from England to America in 1637, and settled at Wenham, Essex County, Mass., the father of Lewis Fiske living first in New Hampshire, then in New York, where this son was born Dec. 24, 1825, in Penfield, Monroe County.

In 1835 his father came with his family to Michigan, and at the age of twenty-one the subject of this sketch entered the University at Ann Arbor, graduating therefrom in 1850 with the degree of A. B. In early life, eager for an education, he formed a plan to take a college course with the profession of law in view. Accord-



LEWIS R. FISKE.

McMILLAN LABORATORY.

ingly, after receiving his degree, he began the study of law; but in the autumn of the same year he was appointed Professor of Natural Science in the Wesleyan Seminary and Female Collegiate Institute. In 1853 the University conferred upon him the degree of A. M., and during the year 1854 he took a special course in chemistry at Harvard to fit him for teaching that science.

Dr. Fiske's public life may be divided into three periods, the first dating from the time he left college in 1850, when he took the chair of Natural Science in what is now Albion College, retaining it three years and then filling a similar position in the State Normal School for the next three years, after which he held the chair of Chemistry in the Agricultural College at Lansing until 1863.

The second period of his life comprised his work in the ministry, when, as a clergyman of the Methodist Episcopal church, from 1863 to 1877, he filled pastorates in Jackson, Ann Arbor, and Detroit. It was during this period in 1873 that Albion College conferred upon him the degree of Doctor of Divinity, while six years later Michigan University honored him with the degree of Doctor of Laws.

The third period of his public life began in 1877, when he was made President of Albion College, which position he holds at the present writing.

For three years, beginning with January, 1875, Dr. Fiske was editor of the *Michigan Christian Advocate*, while holding the pastorate of a Detroit church. For twelve years he has been trustee of the Board of Education of the M. E. church, and has six times been elected member of the Quadrennial General Conference of the church, and also was a member of the Ecumenical Conference held in Washington in 1891. He was president of the Michigan State Teachers' Association in 1889, and during 1894 was president of the College Association, which included all the leading Methodist colleges of the country.

As President of Albion College he has with much spirit thrown his energies into educational work, and the growth and present standing of the institution testify to the skill and wisdom of his administration.

ALBION COLLEGE.

Albion College opened as an Academy in November, 1843, became a female College in 1849, and was granted full college powers in 1861. During its first period as a seminary—before the days of graded schools—it was largely patronized. It erected and occupied one building as a dormitory and for school work.

During its second period, as Seminary and Female Collegiate Institute, it was well attended, graduating 117 young women with the degree of M. A. S. It was in this period that the second college building was erected, which was consumed by fire in the winter of 1853-54, to replace which another structure was erected the following year.

During the earlier years of the third period, which commenced in 1861, the enrollment was not large, and many discouragements were experienced. But for the last fifteen or sixteen years there has been steady and rapid improvement. The courses of study have been extended, many new lines of work provided, a large range of electives supplied, seminary methods introduced, specialists put into the chairs of instruction, and a decidedly University spirit awakened. The patronage has largely increased. In 1882 the attendance in the College of Liberal Arts—the four college classes—was only 37; at the present time it is 250. The aggregate attendance in all the departments is now over six hundred. The Conservatory of Music employs ten teachers, the entire Board of Instruction consisting of thirty-two professors and teachers.

The chapel building was erected in 1870, the astronomical observatory in 1883-84, the gymnasium in 1892, and the McMillan laboratory in 1893. Hon. Aaron T. Bliss has engaged to erect a library building which will be the finest structure on the grounds.

The appliances for instruction in chemistry, biology, astronomy, mineralogy and paleontology are good. The library, though consisting of only about 11,000 bound volumes and 4,500 unbound volumes and pamphlets, is more technical than general, having been selected with express reference to the wants of the several departments.

The following persons have occupied the position of Principal or President of the institution:—Charles F. Stockwell, Clark T. Hinman, Ira Mayhew, Thomas H. Sinex, George B. Jocelyn, J. L. G. McKeown, William B. Silber, and Lewis R. Fiske. Doctor Fiske has been President since 1877. The college is now enjoying much prosperity, and is largely patronized by graduates of the high schools of the State.

Aside from two Fraternity Halls, six college buildings have been erected on the grounds. Of these a cut of the McMillan Laboratory may be seen on an adjoining page.

AUGUST F. BRUSKE, D. D.

PRESIDENT OF ALMA COLLEGE.

The subject of this sketch was born in the village of Rachen, Prussia, March 24, 1847. His parents, Benjamin and Maria Bruske, were peasants of fair education and of that sturdy moral fiber for which Germany is so distinguished. Two children were given them, for whom the parents cherished the loftiest ambition. Believing that the United States of America furnished opportunities for rising in the world not equalled in the Fatherland, the family came here in 1854 and settled on a little farm near Perrinsville, Michigan, which remained the family home for many years. Here the younger son, with whom we are concerned, received a common school education. When fifteen years of age, having been much encouraged by his neighbors, he decided upon a college education, and entered the Preparatory Department of Adrian College at that time, remaining until the Spring of 1864.

Our country was then struggling for life, and he responded to its call for volunteers by enlisting in the 24th Mich. Infantry, in which he served till the close of the war. He then resumed his student labors and continued his work at Adrian until he graduated in 1869. A preparation for the ministry followed at Drew Theological Seminary, and in the autumn of 1871 he was ordained a preacher of the Gospel in the Congregational church, becoming pastor in Charlotte the following year, where he remained till 1878. The church was remarkably strengthened during these years, its growth necessitating the erection of a larger sanctuary, for which the community expended $30,000.

After this service of six years, Dr. Bruske received a call to the First Presbyterian church, of Saginaw, W. S., which he accepted and where he continued to labor for thirteen years. Here also a new building became necessary and two other churches were organized; one in the southern, the other in the northern part of the city.

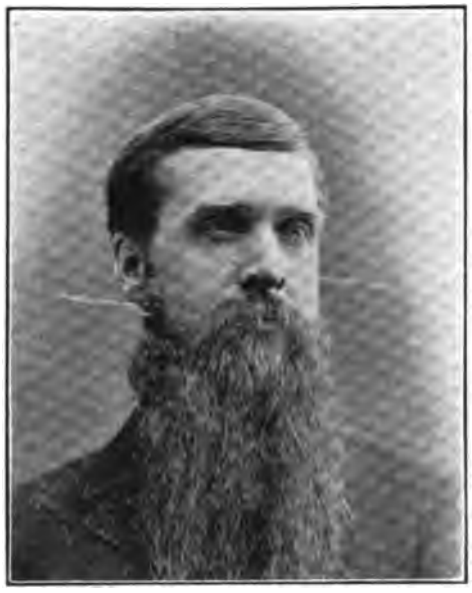
In the meantime he had advocated the founding of Alma College, and from its beginning was placed upon the Board of Trustees and the executive committee. In 1891 the friends of the college believed that a crisis had come and that, if its work was to be continued, Mr. Bruske must leave the pastorate and devote his energies to it. He finally accepted the trust and was inaugurated president in the spring of 1892, at which time he received the honorary degree of D. D., from Lake Forest University. Since then the one work to which he has devoted himself has been the upbuilding of Alma College.

ALMA COLLEGE.

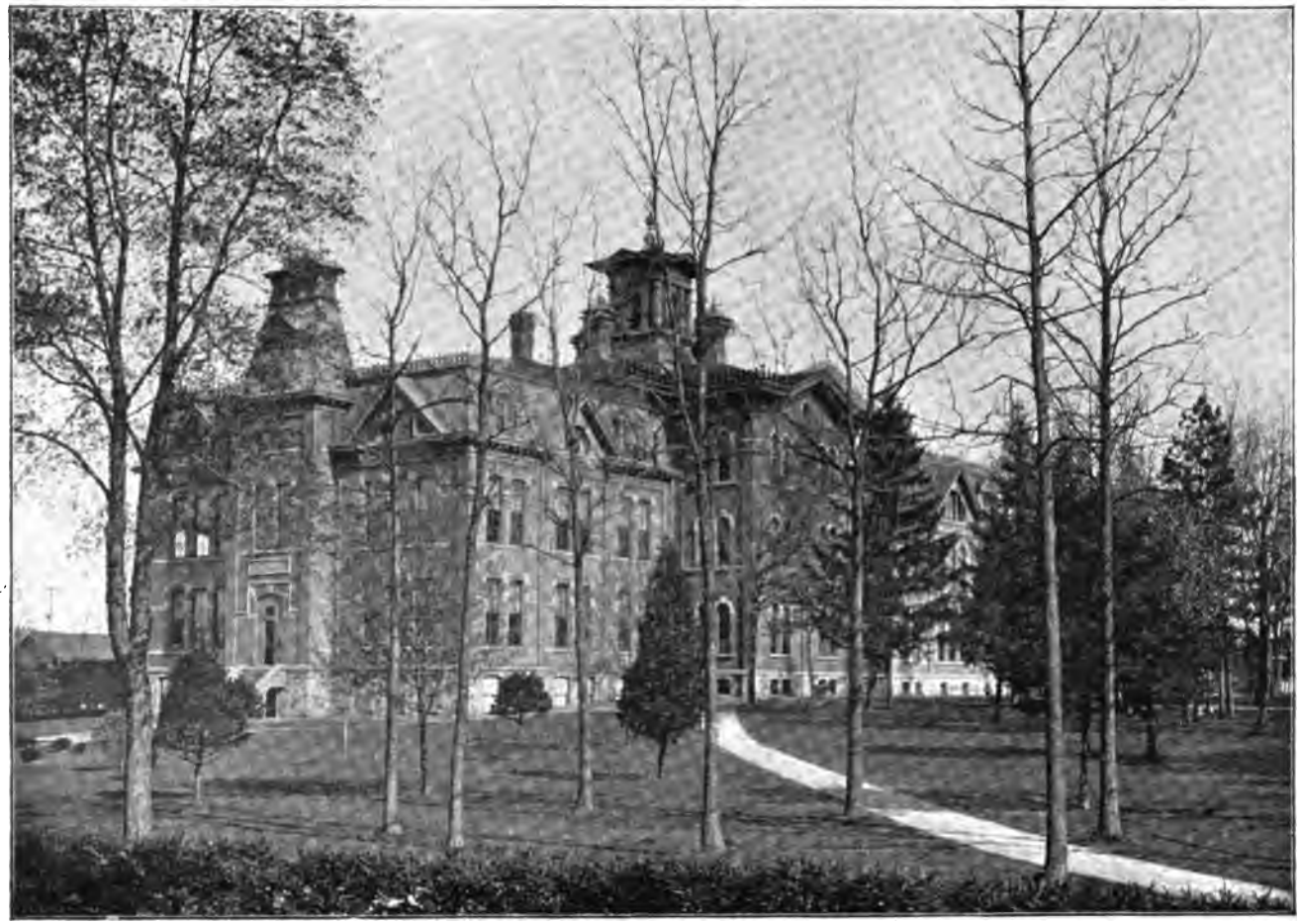
Alma College is the youngest of our institutions of higher learning. The Presbyterian church seldom moves swiftly; it therefore seldom moves unwisely. A short time before the Civil War an effort was made to establish a college at Marshall. A charter was obtained, but the four years of blood and fire came which brought only discouragement to the friends of the enterprise. During the succeeding

Prest A. F. Brooke. D.D.

Main Building
Museum & Gymnasium
Library
Ladies Hall
Alma College



GEORGE W. CAVINESS.



BATTLE CREEK COLLEGE.

BATTLE CREEK COLLEGE.

period of twenty years almost nothing was done. Ten years ago many of the citizens of the State awoke to the realization of the fact that the large part of Michigan lying north of Lansing was no longer a wilderness of pine stumps and hardwood trees, but a region of farms and villages and citizens, where dwell more than a million of our people. Should they be left without educational facilities? If they have jails and prisons, asylums and almshouses, should they not also have common and high schools, Normal schools, and colleges? To this the Synod of Michigan, under date of Oct. 14, 1886, made answer:

"Resolved, That in view of all the facts brought before us we will, with God's help, establish and endow a college within our bounds."

A proffered gift of grounds and buildings from A. A. Wright and the citizens of Alma was accepted, and in the following year the college opened its doors for the reception of students. Since then it has continued to do its modest and faithful work, nor has it been without gratifying success. Although in competition with institutions half a century old and supported by the treasury of a great State, Alma college has had a remarkable growth. Beginning with thirty-five students, it last year numbered two hundred twenty. It commenced with two buildings and now has five. At first it had a Faculty of seven instructors, which has increased to seventeen. It had no library seven years ago; it now possesses one of the best, numbering over 14,000 volumes and nearly as many pamphlets. During the present year a building has been completed for Museum and Gymnasium purposes. These together with excellent apparatus, purchased at different times for the illustration of physical sciences, have put the college in possession of the essentials for acquiring a thorough and liberal education.

It is not Alma's ambition to be a University with professional courses and multitudes of students, but rather to become to Michigan what Amherst is to Massachusetts or Oberlin to Ohio—a place for the highest intellectual and physical training, combined with distinctively moral and Christian culture. Its continuous growth during these years of commercial depression, augurs well for its future prosperity and the realization of its fondest hopes.

GEORGE W. CAVINESS.

PRESIDENT OF BATTLE CREEK COLLEGE.

Among the many self-made men numbered in the ranks of America's great army of educators may be found Geo. W. Caviness, who was born at Fairfield, Iowa, March 29, 1857.

Gaining his early education in the common schools, he labored as a farm hand in summer and taught district school in winter, until at length able to gain the college education for which he longed, so that he graduated from Battle Creek College with the highest honors of his class in 1882.

Seven years of teaching in the public schools of Iowa and Michigan, six years of experience as Principal of South Lancaster Academy, and one year as Professor of Greek and Latin in his Alma Mater, furnished the training which prepared him to become the head of Battle Creek College, where he also fills the chair of Mental and Moral Science.

Starting at the bottom of the ladder, without the aid of money or influential friends, by working early and late, by considerable personal sacrifice, and by always making the most of his opportunities, he steadily rose until success crowned his efforts and he was installed in this position of honor and influence while still on the sunny side of forty.

BATTLE CREEK COLLEGE.

This is the oldest and largest of the S. D. A. educational institutions, and has been the training school for most of the teachers connected with the work in other colleges and schools. It is strictly denominational. While others may share the benefits of its instruction, the primary object for which it is maintained is the dissemination of Seventh-day Adventists' views. The distinctive feature of this college as compared with others, is the extent of Biblical instruction. There is a five years course of continuous Bible study.

The college was founded in 1874, when the present college building proper was erected, followed by the building of the ladies' dormitory in 1889. Both of these have since been enlarged to double their original capacity. The grounds occupy a fine eminence in the western part of the city, just opposite the sanitarium, whose attractive grounds are in full view from the college buildings. The library consists of about two thousand volumes, with new books being constantly added. The reading room is supplied with the leading secular and religious papers and magazines.

A complete graded school is conducted in the same building under a separate principal. Scholars are admitted from the beginning of their school life to the completion of the B. A. course. Graduates are admitted to the Michigan and other universities without examination, and are given credit on the University course the same as if previous studies had been had at the respective institutions. The higher course includes Biblical, scientific, and classical studies, and the regular graded courses lead up to these. The study of things rather than words is advocated, and in the primary departments words are connected with objects, no attention being paid to spelling by letters, until after considerable training in object lessons. Word-pictures is the term used.

The approximate enrollment of pupils during 1894 was seven hundred, with a capacity for three hundred more. The total number of instructors and helpers is thirty-four. A board of trustees is intrusted with the management of the institution. The secretary of the board is Prof. W. W. Prescott, who is also general educational secretary of the Seventh-day Adventist denomination. The president is Geo. W. Caviness.

EDSON L. WHITNEY, LL. B., A. M., Ph. D.

ACTING PRESIDENT OF BENZONIA COLLEGE.

The subject of this sketch is of Puritan extraction, being a direct descendant of John Whitney, who settled in Watertown in 1653, while his ancestors on his mother's side emigrated to this country in 1638. He is New England born and bred, and was but four years old when his parents moved to Boston in 1865.

He prepared for college at the Boston Latin School, entered Harvard in 1881, and completed the work required for graduation in three years. Instead of graduating, however, he remained the fourth year, combining with his college work the work of the first year in the Harvard Law School, spending his spare time in the law office of Hon. Stillman B. Allen, and Hon. John D. Long, ex-governor of Massachusetts and at the time a representative in Congress. In June, 1886, he was admitted to the Suffolk (Boston) Bar, and the following year continued his studies in the office of H. W. Chaplin, Esq., ex-assistant district attorney of Suffolk county and lecturer in the Harvard Law School. In 1887 he received the degree of LL. B. from Boston University Law School, having completed the three-year course in two years. The three following years were spent in the Harvard Graduate School, from which he received the degree of A. M. in 1888, and Ph. D. in 1890, in the Department of History and Political Science. During two of these years he was assistant in history and during the third held a graduate scholarship.

EDSON G. WHITNEY.

BENZONIA COLLEGE.

Since 1890 his time has been spent in teaching and study. He has written for various papers and magazines, and has read papers and delivered talks at various meetings of an educational character, being interested in teachers' institutes and attending whenever opportunity offers. He recently published a monograph in the Johns Hopkins' University Studies, entitled "Government of the Colony of South Carolina," also a bibliography of South Carolina in the last annual report of the American Historical Association. He is a member of the Nebraska Historical Society, the Nebraska Congregational History Society, the Harvard Teachers' Association, the American Historical Association, the American Economic Association, the American Academy of Political and Social Science, the Political Science Association of the Central States, and several other societies of a minor or local character.

Dr. Whitney's experience in teaching has been large and varied. He has taught in the public schools of Nebraska, was for a year at the head of the historical department in Norwich University, Vt., and taught history in the Massachusetts Institute of Technology, Boston. He left the last named institution to take charge of the Political Science Department in Benzonia College in 1894, and on the resignation of President Breed, in October, 1895, was appointed acting president of this institution.

BENZONIA COLLEGE.

This college is the successor of Grand Traverse College, a secondary school founded by a colony from Oberlin that settled in Benzie County in 1858, under the direction of Rev. Charles E. Bailey. It was the expressed intention of this colony to found and nourish a Christian college in their midst, and one-fourth of all the land taken up by them was transferred to trustees as an endowment for the institution. Grounds were dedicated in 1860. Instruction began to be given in the Carrier building during the summer of 1863, with Rev. Dr. J. B. Walker as President and Rev. Reuben Hatch as Professor of Languages. The sessions of the school were next held in a log house erected for this purpose.

As the accommodations soon became too small for the growing institution, a building was erected on the west campus. With its completion in 1869 came more students and increased prosperity. The future appeared unusually promising, until the unfortunate destruction of this building by fire in 1874. The hard times having already begun, the authorities were unable to rebuild at once and a temporary structure was used until the building now known as East Hall was secured, in which recitations were held until the completion of the new hall in 1890, which was named Barber Hall, in honor of Rev. Amzi Barber, a trustee of the college from the beginning.

The college had struggled with varying success for nearly thirty years. The slow development of the country, the want of railroad facilities, and the lack of information about the institution, had caused it to be little known outside the immediate vicinity of Benzonia. In 1888 a demand was made by the Congregationalists of northern Michigan for the establishment of a college in their midst. A convention was called to consider the matter, and a "Committee of Fifteen" was appointed, which, after a careful consideration of the question, reported in favor of adopting Grand Traverse College as the Congregational college of northern Michigan. The Board of Trustees was made more representative in character, a new charter was obtained, the property of the former institution was transferred to the new body, and the Congregational churches of northern Michigan pledged their moral and material support to the new institution named Benzonia College.

The immediate expansion of the college became necessary, and college courses were opened to which Departments of Music, Art, and Business, have since been added. The intention of the authorities is to maintain a college equal in scholarship to any in the State. Admission requirements are the same as those for admission to the State University, while the full course in the Preparatory Department occupies four years, and a three-year Normal Course fits for a first grade certificate.

GERRIT J. KOLLEN, A. B., LL. D.

PRESIDENT OF HOPE COLLEGE.

Gerrit J. Kollen, was born at Nyverdal, Kingdom of the Netherlands, August 9, 1843. He is the son of Gerrit J. and Egberdina Kollen, and was but two and a-half years old when his father died. In 1851 his widowed mother came to this country with five children of whom he was the youngest, settling on a farm in Allegan Co., Mich.

President Kollen received his earlier education in the public schools of the rural districts and in the village of Allegan. In 1862 he entered the Preparatory Department of Hope College and graduated from the same institution in 1868, with the degree of A. B. He then obtained a State certificate and taught in the common schools for the next three years.

In 1871 he entered upon his life work and was enrolled among the faculty of his Alma Mater, at first being Assistant Professor of Mathematics and Physics, advancing to a full professorship in 1878, and finally in 1893, as the reward of his years of faithful and efficient service, being elected president of the college, since which time he has fully demonstrated the wisdom of the choice.

Dr. Kollen is noted for the interest he takes in everything that pertains to the growth of the City of Holland, as also for his genial, kindly bearing toward the students under his charge; and the new building for library and lecture purposes which adds so much to the attractions of Hope College, was largely secured through the zealous efforts of its president.

HOPE COLLEGE.

Hope College is emphatically the child of Providence and of the Reformed Church in America, the Oldest Protestant church in the United States.

As early as the year 1836 the attention of the General Synod of this church was called to the, "weighty auxiliary influence of schools and Christian education in evangelizing the West." In the year 1847 a fresh motive was presented to the Synod, couched in the following language: "A new body of Pilgrims has reached our shores from Holland, the land of our fathers and the shelter in ages gone by to outcasts by persecution. The movement will not lose on the score of its moral grandeur by comparison with any associated act of emigration in the history of our country." In the same report the following prophetic sentence occurs: "The establishment of a high school, at some commanding point among these emigrants, would hardly fail to prove eventually the germ of something important."

Such were the first steps towards the founding of Holland Academy, which sixteen years later, was organized as Hope College, and which Dr. Van Raalte, the founder of the Holland colony in western Michigan, called "My anchor of hope for this people in the future." Thus we see how closely the history of the Hollanders in Michigan is linked with that of the first settlers in New Amsterdam, on Manhattan Island.

From 1847 on there has been a steady and almost uninterrupted growth of both the Reformed church and its foster-child, Hope College.

The first Reformed church at the West was organized in 1837, at Fairview, Ill., by a colony of people who migrated from northern New Jersey. In 1843 the Reformed denomination numbered only seven churches in the West, comprised in the Classes of Illinois and Michigan. From this time on the growth has been steady, so that today the churches of the Reformed denomination are found in every State, from the Hudson river to the Dakotas and from the Lakes to Texas.

As these churches multiplied and grew stronger, they became the natural feeders of the denominational but non-sectarian school located at Holland, Mich. Even during its pioneer period Hope College drew its students from every part of this vast area.

GERRITT J. KOLLEN.

HOPE COLLEGE.

The Formative Period of the school extends from 1851 to 1863, embracing three intervals of four years each.

The First Interval extends through 1851-55. During this period the school was under the principalship of Mr. Walter T. Taylor; the first Latin classes were begun, and a few young men were prepared for a collegiate course.

The Second Interval extends through 1855-59, under the principalship of Rev. John Van Vleck, D. D. It was during this period that the ecclesiastical germ of the school began to develop. A few students were carried beyond Freshman studies and some theological instruction was given. The foundation of permanent property was also laid through the labors of Drs. Van Vleck and Van Raalte.

The Third and last Interval of the Formative Period extends through 1859-63. During this time Dr. Philip Phelps, Jr., was principal.

This interval was marked by a rigid classification of the students preparatory to the separation of distinct departments of instruction—by the beginning of such steps as were requisite for making the school itself a complete institution instead of remaining simply a feeder to distant ones; by the consequent formation of the first Freshman class; and by the removal of serious hindrances to thorough organization.

Dr. Phelps began his work with thirty-three students. It was still the day of small things, but the future began to brighten. In 1859 the first brick building was erected at a cost of about $12,000. During the next few years other buildings were erected, among which were a grammar school, a small laboratory, a few lecture rooms, and a gymnasium, later used as a chapel. Of the erection of the last named building Dr. Phelps in one of his reports says: "In the winter of 1862, on the proposal of the Principal, the students determined like '*the sons of the prophets*' mentioned in the book of Kings, to take every man his ax and go into the forest and prepare timber for the erection of a gymnasium that might be used for commencement purposes. They prepared and put together the material under the superintendence of a carpenter, and when the April vacation came the work was driven in all weathers.

The building when completed was privately dedicated by the hoisting of the stars and stripes, the reading of a psalm, the singing of a hymn, the offering of a prayer, and the concluding utterance of three rousing cheers. A few days later it was publicly dedicated at the Commencement, July, 1862, when the pioneer class, having finished their preparatory course, were ushered into the Freshman year of the nascent college. Thus did the Academy develop into a college.

The organization dates from June, 1863, when on the approval of the "Collegiate Department," the General Synod established the first Board of Superintendents. This was the turning point in the history, for it settled the question whether Holland in Michigan was to be an educational center for the Reformed Church.

In order that this historical outline may not be too lengthy, we will compress the most important events in the history of the college during 1863-1895 into the subjoined general calendar.

GENERAL CALENDAR:

1865. Hope College incorporated. Forty-eight students in all.
1866. Rev. P. Phelps, Jr., D. D., inaugurated President.
1869. Western Theological Seminary established.
1878. Dr. Philip Phelps resigns, and Rev. Dr. G. H. Mandeville elected Provisional President.
1885. Rev. Dr. Charles Scott elected President.
1893. President Scott resigns, and Dr. G. J. Kollen is elected President.
1895. 338 Students in all, and a Faculty of 9 Professors, 1 Tutor, 4 Lecturers, and 1 Lady Principal.

GEORGE F. MOSHER, LL. D.

PRESIDENT OF HILLSDALE COLLEGE.

Dr. Mosher came to the presidency of Hillsdale College in 1886 from a five years' residence in Europe, where he had been U. S. Consul at Nice, France, and in Sonnenberg, Germany, having been appointed to the former post by President Garfield, just before his assassination in 1881.

During his residence abroad Mr. Mosher traveled in most of the European countries, observing their condition and the customs of the people; and some of his reports on the social and industrial conditions of the peasant class in Germany, were highly spoken of by the State Department at Washington.

George F. Mosher is a native of Maine and a graduate of Bowdoin College in the class of 1869. For twelve years following his graduation he was engaged in editorial work in Dover, N. H., and in Boston. While residing in Dover, he was twice elected to the New Hampshire legislature, and each time was chairman of the Committee on State Normal School. He was also a member of the Dover School Board, and greatly interested in the improvement of the public schools of that city.

As a teacher President Mosher had served only two terms in an academy and two in the public schools of Maine, before leaving college; but he soon developed good teaching qualities as well as executive ability in his new post, and under his administration the progress of the college has been steady and uniform. The courses of study have been strengthened, electives have been introduced, and over ninety thousand dollars added to the endowment fund. A feeling of friendship and respect exists between the President, the faculty, and the students; and there are no disorderly outbreaks. He is maintaining the good record of the College in the educational work of the State, and is strengthening the feeling of attachment which has always existed between the alumni and their Alma Mater. No educator in Michigan is doing better work for the cause than is President Mosher.

HILLSDALE COLLEGE.

This college has sustained an important relation to the educational interests of the State. It was one of the first institutions of its grade in the field, following the opening of the State University by only a few years. Since its opening term in the autumn of 1855, it has pursued an unbroken career. Even the fire of 1874, which almost totally destroyed it in a physical sense, hardly interrupted the work of the classes. Recitation rooms were improvised in the church and in private houses, and thus the regular work of instruction went on while the walls of the new buildings were going up. This loss, including much of the library and the laboratory equipments, should be remembered in estimating the present facilities of the college. Practically, this college has equipped itself twice in these respects in the last forty years.

The republican party has sometimes been criticised for boasting of its past record, while its critics have said that it would be more to the point if it would be achieving a present fame equal to its past. This college has likewise referred with satisfaction to some of its past pioneering. It has always been a college which has raised no bars against sex, color, or nationality, but has simply asked if the applicant wanted to know something, and if he could behave himself while trying to learn it. As a result it has had a class of independent, labor-respecting, diligent students, who have not done too poorly in college, nor wholly failed to distinguish themselves in the world.

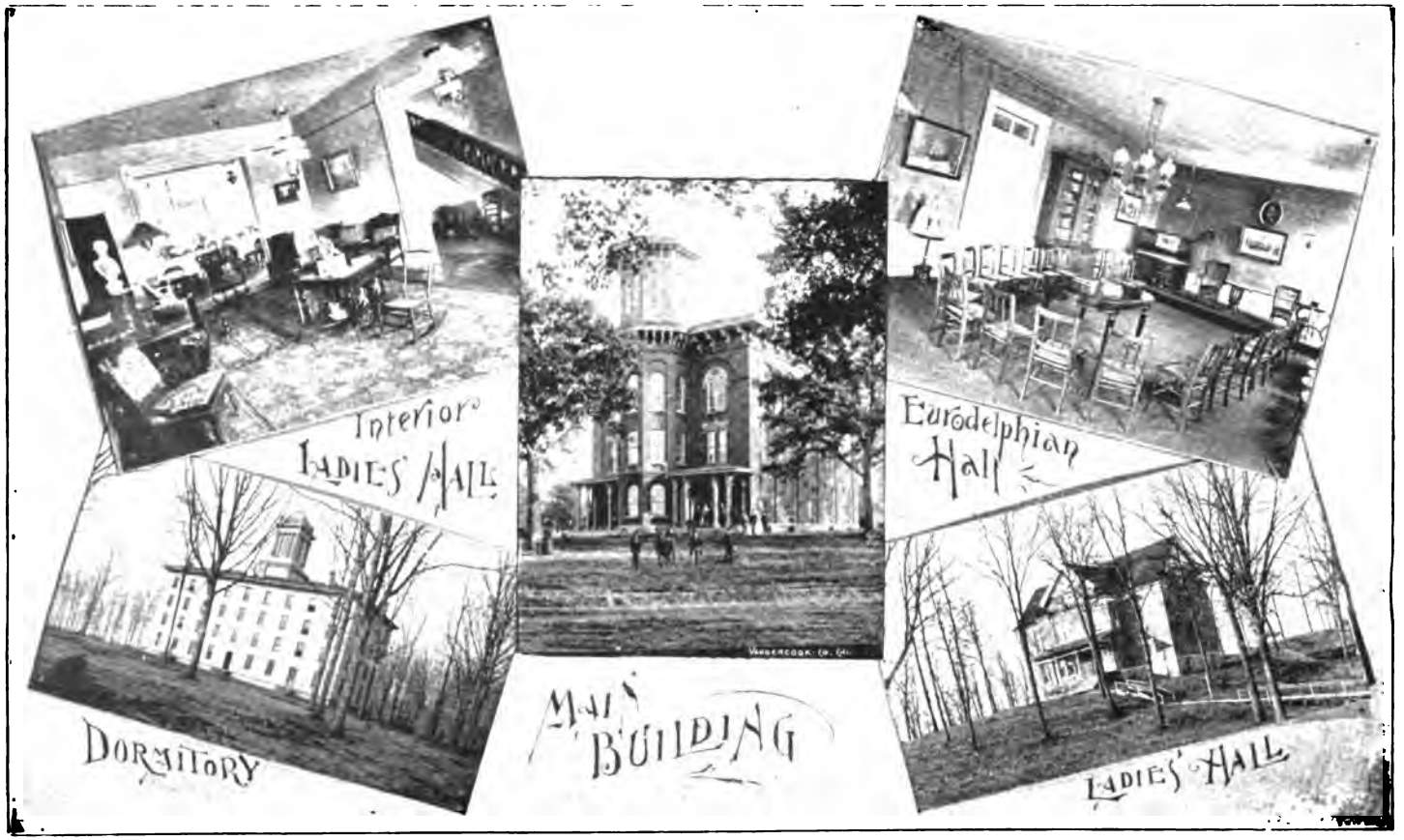
But while there are certain "first things" which the college may claim to have done in the educational field of the State, there are other things no less important which it has tried to do equally with its sister colleges. These would include all those steps which it has taken in the line of true educational progress. It once offered a three years' degree (bachelor's) course. Also it required two years of

HILLSDALE COLLEGE.

GEORGE F. MOSHER.

ALPHA SOLDIERS' MEMORIAL MONUMENT.

A. GAYLORD SLOCUM.



KALAMAZOO COLLEGE.

preparation to enter that course. Furthermore, in its four years' courses leading to the bachelor's degree, it offered only prescribed studies which all alike in the given course must take. But all that is changed. It now offers no degree course of less than four years. After certain prescribed studies which are regarded as fundamentals, electives are introduced as freely as possible. In its entrance requirements it gives due heed to the suggestions made by leading educational councils, like the reports of the Committees of Ten and Fifteen; and in all possible ways it tries to keep step with the great educational procession.

It has always been a patriotic institution. A significant motto in large letters, which for many years adorned the walls of the chapel, said, "We honor the men who wore the blue." In memory of these men, about a hundred of whom enlisted from the college and nearly thirty of whom either fell in battle or perished from exposure, the beautiful monument (an engraving of which appears on another page) was dedicated under the auspices of one of the Literary Societies, at the Commencement in 1895. Alumni or former students, including Col. Charles P. Lincoln of Washington, Congressman Hopkins of Illinois, Hon. H. W. Magee of Chicago, Will Carleton, Rosa Hartwick Thorpe, and others, furnished oratory and song for what was truly an interesting occasion.

A distinctive purpose of the college at the present time is to offer first class college facilities at a cost which should bring a liberal education within the reach of all. Its departments are preparatory, academic, pedagogical, theological, music, art, and military. A Regular Army officer is in charge of the military department. Special attention is now being given to the preparatory department with a view to making it the best in the State, while the normal work is in charge of an experienced teacher.

ARTHUR GAYLORD SLOCUM, A. M., LL. D.

PRESIDENT OF KALAMAZOO COLLEGE.

In 1847, on a farm in Steuben, Oneida Co., N. Y., Arthur Gaylord Slocum first saw the light of day. In boyhood he attended the district school, afterwards spent three years in the Seminary at Whitestone, N. Y., graduating there in 1867.

After spending a few months as clerk (carrying packages, etc.) in New York City, he went to Dover, N. H., where he was bookkeeper in the Free Will Baptist Publishing House for one year. The desire for a college education grew upon him and he returned to Cortland, N. Y., reviewed his studies for twelve weeks in the Normal school, and entered the University of Rochester in the fall of '69. At the middle of the year he left college for lack of funds and became principal of the schools at Scottsville, N. Y., remaining for one year and a half. Returning to the University in the fall of '71, he graduated in the A. B. course with the class of '74.

After graduation he was Principal of the Rochester Collegiate Institute for one year, and during '75-'76 was principal of the Riverside Collegiate Institute near Wellsville, N. Y. The next fall he became Superintendent of Schools and Principal of the Free Academy at Corning, N. Y., retaining this position until called to the Presidency of Kalamazoo College in 1892.

The University of Rochester granted him A. M. in '77, a few years later elected him to membership in the Phi Beta Kappa society, and granted him the degree of LL. D. in 1892. He was at one time an officer of the N. Y. State Teachers' Association and also of the Council of Superintendents, and held similar positions in other organizations, having always led a busy life and having presented papers before various societies such as the Michigan Political Science Association, the Schoolmasters' Club, etc.

Since 1892 Dr. Slocum has been thoroughly identified with the interests of Kalamazoo College, and has infused new life and vigor into the institution under his charge.

KALAMAZOO COLLEGE.

The early settlers of Michigan were largely from New England and New York, and regarded educational facilities, such as they had had in their former homes, a necessity.

The history of the founding of Kalamazoo College is intimately connected with the early educational development of the State, and is of especial interest, as this is the oldest classical educational institution within the borders of Michigan. The plan of founding such an institution originated with Rev. Thomas W. Merrill, a graduate of Waterville College (now known as Colby University), who worked and traveled continuously for several years to raise the necessary funds, and to obtain a charter. Most valuable assistance was given him by Hon. Caleb Eldred. The original charter for "The Michigan and Huron Institute" or, as it was later named, "The Kalamazoo Literary Institute," was granted April 22, 1833.

The French name, *institute*, was chosen instead of the English term, college; but the following extract from the charter makes the character of the institution sufficiently evident:

"Said trustees shall establish in said territory at such place as they may judge best, a Literary Institute, to promote the knowledge of all those branches of education usually taught in academies and collegiate institutions." The provision for preparatory instruction was necessary, as there were few regular preparatory schools at that time.

In 1835 the citizens of Kalamazoo contributed $2,500 and a large tract of land in the southern part of the city to the new institution. The first building was erected in 1836. Later the school was connected as a branch with the newly founded University of Michigan, but the connection was soon severed.

The Baptists of the State, who had been from the first the principal supporters of the institution, purchased the present grounds of the college in the western part of the city and, in the years 1848-50, erected the main building, which is now used as a dormitory.

In February, 1855, a regular college charter was granted by the legislature. This charter, which was of the most liberal nature, was only obtained after a hard struggle. By it women were granted equal privileges with men, so giving to Kalamazoo the honor of being one of the first colleges for women in the United States.

The original policy of the Baptists of the State was to have a theological seminary at Kalamazoo associated with the college. More recently this policy has been relinquished, and the property of the seminary is transferred in trust to the college on condition that certain advantages shall be extended to students for the ministry; and biblical instruction in some form is provided for in connection with the courses in literature and science.

During the College year 1895-96, an agreement for mutual advantage was consummated between the Trustees of the College and the University of Chicago. By the terms of this agreement the College will be known as a College Affiliated with the University of Chicago.

COLONEL JOSEPH SUMNER ROGERS,

SUPERINTENDENT OF MICHIGAN MILITARY ACADEMY.

The Michigan Military Academy is identified with the name of its founder and present superintendent, Colonel Joseph Sumner Rogers, whose life achievement has been the gradual building up, often in the face of obstacles, sometimes with heroic effort, of this institution, which now ranks among the first of its kind in this country.

Colonel Rogers is a lineal descendant of Thomas Rogers, a member of the band of pilgrims who came to New England in the Mayflower. His father was Joseph Rogers, a native of the State of Maine; his mother was Joan Harriman, of an old New England family. At Orrington, Maine, in July, 1844, Colonel Rogers was born.

Until the outbreak of the war in 1861 he attended the schools in the neighborhood of his birthplace. At the early age of seventeen he enlisted, taking his place

LIBRARY MILITARY ACADEMY.

J. SUMNER ROGERS.

MILITARY ACADEMY.

in the ranks in the Second Regiment of Maine Volunteers. He participated in the first battle of Bull Run, in all the battles of the Peninsular Campaign under McClellan, and in the second battle of Bull Run. In this battle he received a severe wound in the face, the honorable mark of which he still carries.

In June, 1863, his term of service expired and he was discharged from the Maine Volunteers, but in 1864 he again entered the army, becoming a second lieutenant in the Thirty-first Maine Volunteers. After serving in this office for one month, he was promoted to a captaincy, at the age of twenty. Until the close of the war he served in the Army of the Potomac, when he was mustered out as brevet Major, in July, 1865.

In 1867 he was appointed lieutenant in the Regular Army and assigned to the First Infantry. He was subsequently breveted first lieutenant and captain. He served with the army in Louisiana, and afterwards in Michigan. In 1872 he was on duty at Fort Wayne, and in that year he was elected major of the Detroit Cadets, commanding this corps until the fall of 1876, when he visited the Centennial Exposition at Philadelphia with his command. In 1874 he was appointed by President Grant Professor of Military Science and Tactics at the high school in Detroit, but he resigned from the army in 1877 for the purpose of organizing the Military Academy at Orchard Lake.

Those qualities of character which gained honorable advancement and distinction to the boy soldier and the maturer officer, have served in the same remarkable way to secure success in the courageous undertaking of erecting, out of the crudest materials and without a single foundation gift, an educational institution of the highest ideals and purposes. Colonel Rogers' fitness for this work has proved to be of the rarest sort. His early schooling was built upon in later time by a somewhat extended study in languages and higher mathematics under private instruction, and he has gained a liberal culture in the library that he loves, in all the years since. His severe experiences, and his training as an officer in command, have given him the requisite knowledge, the persistency of will, and the administrative ability for carrying through a work of this kind; and, above all, the temper and character of the man make him intolerant of any except the purest principles of conduct and the highest ideals of attainment. Colonel Rogers still attends to all the details of school administration, and holds the institution close to those fundamental principles on which it has been built.

MICHIGAN MILITARY ACADEMY.

President Angell of the University of Michigan says, "I doubt if any school in this country ever won success so surely and so quickly as the Michigan Military Academy." The founding of this school may be regarded as a pioneer enterprise. No notable private preparatory schools existed in this section of the country, and those who sought such a school for boys going to college commonly looked to the East. It was a bold undertaking to project without donation funds and without immediate prospect of special buildings and equipments, an institution that should soon draw to itself the class of students commonly sent to Exeter or Andover. It was the aim of its founder from the first to make this academy what it has distinctly become, a preparatory school for the best universities and colleges in the country; but is was also his aim to make it more than this. He would have a school which would provide the best intellectual training and, at the same time and as supplementary to this, give to every boy a discipline in personal habits, in the perfecting and strengthening of the body, and in self-government along the lines of moral conduct. This he proposed to do by introducing the military system, which he is so thoroughly fitted to establish and carry on. The success of the enterprise is well attested. The school has grown through the increase of its patronage, and goodly numbers are sent out each year to the University of Michigan, to Harvard, to Yale, to Cornell, and other universities.

The choice of a site for the school was a happy accident. Colonel Rogers was in camp on the shores of Orchard Lake in the summer of '76, with the Detroit Cadets. On the east shore of the lake were a brick mansion and a light frame structure used as a summer hotel. These buildings were beautifully located, with all the conditions contributive to good health, and with surroundings inviting all sorts of

out-door sports—an ideal spot, seemingly, for a school such as Colonel Rogers had been contemplating.

From a very small beginning in the buildings then existing, the attendance gradually increased as the merits of the school became known. Hard times brought from time to time hard trials, trials overcome only by great persistency and heroic effort on the part of the management. As numbers increased, new buildings appeared, and in ten years from the founding there were buildings and means of instruction for 165 cadets—the number then on the roll, registered from all sections of the country.

The school is conducted on broad principles. The instruction is provided by a corps of men coming from the great representative colleges in different parts of the country. The military department is in charge of an army officer, detailed by the United States Government; and while this department is intended to be subordinate to the academic system and contributory to its efficiency, it has been officially recognized as one of the most thorough in the country. A full military equipment for infantry, artillery, and cavalry, equal to that of West Point, is furnished by the United States Government.

The academy now consists of eight brick buildings, all constructed within a few years past and provided with all modern improvements. The main building contains the various offices and nine large recitation rooms. One of these is a physical and chemical laboratory, well fitted with apparatus and supplied with a considerable collection of specimens. The school library is one of the noteworthy features of the school. This is a collection of some eight thousand volumes, most of them standard working books in history, literature, economics, and other subjects. A few however are very rare and valuable, and of curious interest to literary students. This collection is called the Baldwin Library, from Judge Baldwin of Pontiac, who transferred it to the academy by partial donation.

Some of the other buildings are the barracks, accommodating 150 cadets; a handsome and substantial gymnasium and drill hall, just erected; the quartermaster's building, containing also the post office, tailor shop, boot shop, and laundry; a very large riding hall for the cadet cavalry; a tasteful mess hall; the hospital, and the "Castle."

A visit to the school impresses all alike; and all express their admiration of the efficiency in all departments, the business-like promptitude and vigor in the various exercises, the beauty of the military ceremonies, and the fresh health, the manly spirit, the courtesy and general readiness of the body of young men trained under this excellent system.

WILLARD G. SPERRY, D. D.

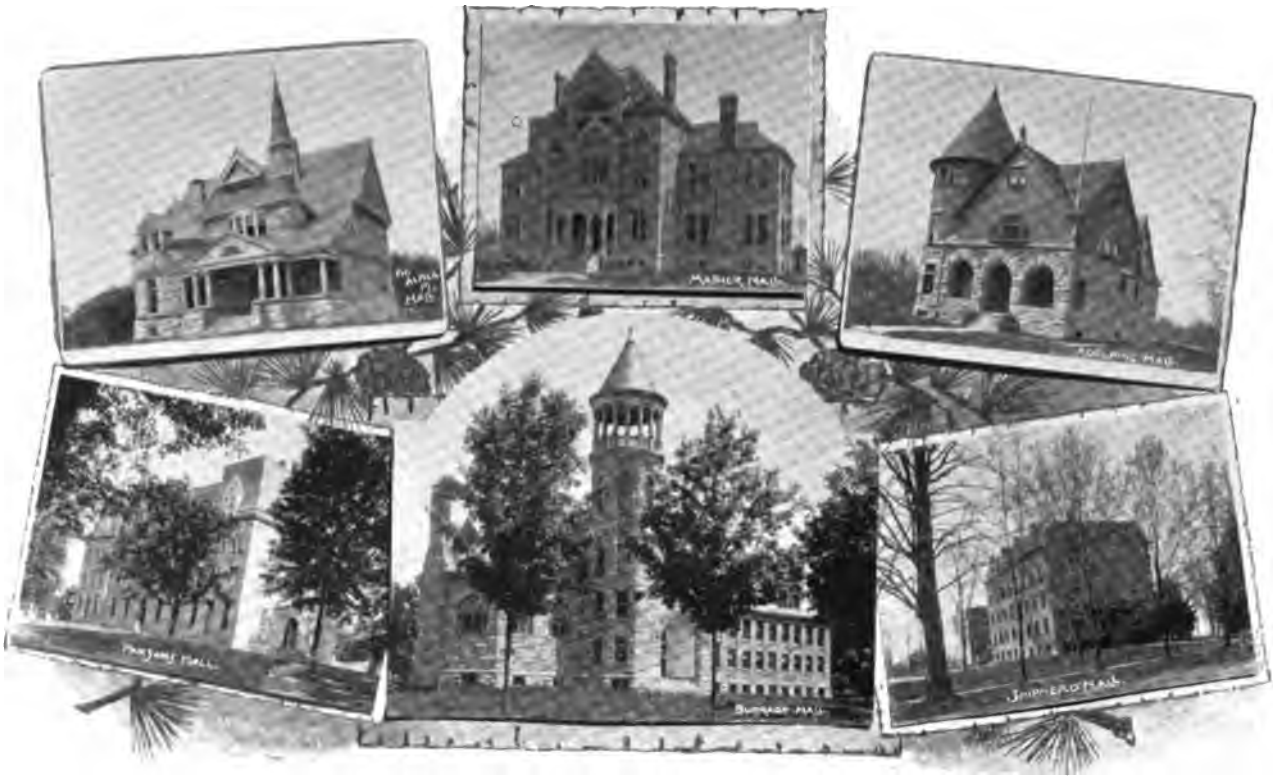
PRESIDENT OF OLIVET COLLEGE.

Willard G. Sperry came to the presidency of Olivet College in the prime of his life. His previous years had been spent in New England. His birth-place was Cambridgeport, Mass., but his family removed in his childhood a few miles inland to the village of Billerica. Massachusetts had not then fully developed its system of high schools, but Billerica had an excellent endowed school, bearing the name of its founder, Mr. Howe. This gave the lad a good preparation for Phillips Academy, Andover, where he fitted for college in the class of 1865 in the days of the famous Dr. Taylor's greatest fame.

Going at once to Yale College he graduated there in 1869. Enough of the burden of making his own way through the course was upon him to make him a sympathetic friend to all struggling students. He was a good oarsman in those college days, though not then heavy enough to be on the University crew. In the Yale of that day his literary prominence in the class counted for more than his athletic gifts.

After graduation he taught in Beverly, Mass., as principal of the high school. His skill in dealing with young people, while largely a native talent, is in no small degree to be credited to the experience of those years as a high school master.

WILLARD G. SPERRY.



OLIVET COLLEGE.

In the winter of 1876 he began the study of theology at Yale Seminary, going to Andover for the second and third years of his course. He was called to the South Congregational Church in Peabody, Mass., before the end of his senior year, and soon after graduation was ordained and installed there in September, 1878. His fruitful ministry of seven years in that historic parish was specially marked by the success with which he marshalled the moral forces of the community against the saloon. In his next pastorate of the same length, with the First Congregational Church of Manchester, N. H., he was equally active in temperance work, though the visible results were not as marked. At Olivet he has the satisfaction of finding himself in a county that has no open saloon and is almost free from unlawful liquor selling.

For his present work his previous experience at the teacher's desk and in the pulpit have been the best of preparation. His strength as a preacher is already appreciated in Michigan as it was long ago in Massachusetts and New Hampshire, and wherever his contributions to the Monday Club series of sermons have been read. His ability to awaken interest in the class-room and his gift for administration, are appreciated by his pupils and his fellow teachers. His natural turn for affairs and the skill acquired from a varied experience, find now the widest scope for their exercise.

OLIVET COLLEGE.

The foundations of Olivet College were laid in the year 1844, by a company of colonists from Oberlin, Ohio, led by Rev. John J. Shipherd. They formed an institution Christian, but undenominational. Their first annual catalog said: "We have no partisan or sectarian interests to subserve and desire to have none. We wish simply to do good to our students by placing in their hands the means of intellectual, moral, and spiritual improvement, and to teach them the divine art of doing good to others." The college has always maintained a high ideal of scholarship. It has been and is unwilling to increase its numbers by lowering its educational standards. If its growth has been slow, it has been constant. It has had many instructors of recognized ability, and has attracted to its halls many students who have now become spiritual and intellectual leaders. It has no fear that education *with the Christian religion* will be one-sided. It stands for the proposition that education is hopelessly one-sided without it.

The last years of Olivet have been years of rapid growth. It now has an admirable equipment; its library is one of the most attractive places in Michigan; its science hall is complete in its appointments; its new church is a charming centre for Olivet's religious life. The conservatory of music is flourishing. The catalog for 1895-96 enrolls the names of twenty-four instructors and three hundred and ninety-nine students. The last onward movement of the college has secured the completer development of science in the preparatory department, and additional instruction for the Normal course.

The college has no .debts and a considerable, though insufficient, endowment Amply provided with the means to enlarge and ennoble the lives of its students, Olivet may well claim the thoughtful attention of those who seek to confer upon their children the blessings of sound learning and Christian character.

PUBLIC LIBRARIES

OF

MICHIGAN

PUBLIC LIBRARIES.

Within the past ten years there has been remarkable progress in the founding and development of public libraries. This statement applies to the country generally, and more especially to the northern and western portions. Some reasons for library activity are obvious. There is vastly more earnest reading and study on the part of the masses of the people than ever before. The great social and economic problems which confront us—the relations of capital and labor, employer and employed, the basis and character of taxation, systems of legislation, financial and monetary questions—matters which profoundly concern all classes, have stirred the minds of men as they have not been stirred before. Important industrial enterprises have developed, and the fact that the margin of profit is narrowed by competition has led to increased mental activity in creating new wants and devising new things to fill them. Scientific investigation has disclosed novel and startling facts, and this in itself has been a stimulus to thought. Life today is very far from being what it was in the days of our immediate predecessors. There has also been remarkable literary activity. The Chatauqua movement has spread over the country and reading circles have multiplied beyond all expectation. Clubs are now organized in almost every community for the study of history, literature, or art, and the members are giving serious attention to the topics before them. University extension teaching has spread almost everywhere and combines entertaining lectures with earnest study. In short there are very many incentives to intellectual activity now which have not formerly existed. Men and women in all classes and social conditions of life are giving their best thoughts and much of their time to conscientious consideration of sociological, historical, and literary questions.

Libraries have not stimulated this appetite for study, except in so far as they have furnished food for it. The popular development of mental activity has rather stimulated the growth for public libraries. People who are interested in clubs and reading circles and university extension must consult many books. Individually they cannot become the owners of all the volumes necessary for their purposes. Therefore, it is reasonable that, in line with the theory that popular education is the concern of the entire community, the books shall be supplied at the general expense and for the free use of the whole public. So it has come about that the free public library is a necessity in every wide-awake community of sufficient population and financial ability to support one.

The spirit which has stirred communities has also reached individuals, and all over the country it is now quite in the ordinary course of events to see persons of wealth contribute substantial aid in founding institutions of this character. The level-headed man of business who has prospered in his worldly affairs realizes that he cannot erect a more enduring monument to himself, or better commend his name to the people of a town in which he would wish to be remembered, than by founding and endowing a library. Michigan has not been lacking in appreciation of the library movement on the part of the people, either in their organized capacity as municipalities or as individuals. There have been notable gifts, and there has been a

generous public spirit in establishing and maintaining free libraries. The principal centers of population have kept well at the front in the matter of modern library progress, as may be seen by a glance over the field.

The Hoyt Public Library of Saginaw, was a gift to the city from the late Jesse Hoyt of New York. He was financially connected with the founding of East Saginaw, and watched its growth and prosperity with the deepest interest, never hesitating to lend both money and influence to assist its development. This interest lasted through his whole life and finally culminated in a legacy of $100,000 "to be used in the erection and furnishing of a suitable and substantial building for a library, free to all persons of good character and habits." As a result of judicious investment between the date of gift and erection of the library, the fund was increased to $128,000.

The design of the building is antique, being slightly suggestive of a sixteenth century monastery, without its rigid lines; and the architects, Messrs. Van Brunt & Howe, succeeded in bringing beauty as well as grace out of the material, which is bluish-gray limestone from the Bayport quarries, with trimmings of Lake Superior red sandstone. Passing through a porch supported by massive columns of sandstone, one finds on the lower floor a vestibule, entrance hall, cloak room, two large, well-appointed rooms for public study and reading, and on either side the delivery desk, rooms for the librarian and assistant, well supplied with books for reference and illustrated works. Behind the desk room and separated from it by a fire-proof compartment, is a bookroom, 52x32 feet in size, with stacks upon two floors capable of holding 50,000 volumes. The basement is also shelved for government documents and bound newspapers. At the left of the entrance hall a broad stairway leads to the second floor, which contains a lecture hall, the trustees' room (utilized also for club study and consultation), and a small side room for conversation or quiet study, as may be required. With the exception of the lecture room, the entire building is finished in oak; the coloring of walls and frescoes is harmonious, and every room is admirably lighted.

The cost of the building, furniture, and books, up to the date of opening, was nearly $90,000, and by careful financiering $50,000 was invested as a fund for the maintenance of the library. By the terms of Mr. Hoyt's will the city bound itself to pay $1,000 a year towards the running expenses, in consideration of certain lots transferred to it for a park, now known as the Hoyt park.

Endeavoring in a conscientious spirit to carry out both the expressed and implied wishes of the founder, the trustees established a library purely for study and reference, and the wisdom of that decision has been fully justified. The library opened in November, 1890, with 20,000 volumes. It now numbers 24,000, one twenty-fourth only being fiction and books for young people, the rest representing, as far as limited means would permit, the standard works in every branch of literary and scientific research. The periodical literature of this library and the publications of various societies are especially worthy of note, comprising, as they do, over 4,000 volumes. In the reading rooms are seventy leading periodicals, and not only the current numbers but the bound volumes are in constant demand. The use of all departments has steadily increased, statistics showing that during the last year—240 public days—more than 20,000 people visited the library for study, using 39,000 volumes in their investigations, while 3,000 confined their attentions to the magazines and papers.

The library has grown in grace as well as numbers, its helpfulness having been thoroughly tested and heartily acknowledged by the thousands of students who yearly seek its aid. Among these are the clubs and societies of both Saginaws, teachers and pupils of the high and grammar schools, members of the university extension classes, and many young business men and women whose opportunities for study have hitherto been restricted. Quiet, cheerful rooms, books without stint, and assistance at all times gladly given, have effectually softened criticism and made the library popular in the best sense of the word; and it is the ambition of those in charge to make it yet a stronger factor in the true culture of the people.

HOYT PUBLIC LIBRARY.

INTERIOR HOYT PUBLIC LIBRARY.

The Hackley Public Library of Muskegon, was a gift to the city from a citizen, Hon. C. H. Hackley, who gave $125,000 to found a free public library and reading room, and afterwards endowed it with $75,000. Thursday, May 25, 1888, Mr. Hackley addressed the following letter to the Board of Education of the city:—

To the Board of Education of the City of Muskegon: I hereby offer to give to the public schools of the city of Muskegon the sum of $100,000 in trust, for the following purposes and in the following manner: I propose to erect on lots 7 and 8, block 70, in said city, a suitable and commodious building for a public library and reading room, and deed the same to your corporation. Should such building and site cost less than the sum of $50,000, so much of that unexpended amount as remains will be given to your board to be expended in the purchase of books and other suitable literature for such public library and reading room.

The sum of $50,000 shall be placed in your hands to be permanently invested by you in some good, safe, interest-bearing securities forever, the income from such investment to be applied by your board, in its discretion, in the acquisition and purchase of books and other literature for such library and reading room. It is possible, however, that the site and building may cost in excess of the sum of $50,000 and in that case, the remainder of the $100,000 will be given to you to be invested as above and for the purposes last stated.

I make this donation upon the condition that the public library and reading room so established shall be forever maintained as a public library in the city of Muskegon, having a reading room in connection therewith under the control of your Board and under such rules and regulations as you may from time to time prescribe, having in view the use of said library and reading room by the public in the most liberal manner; and that the same shall be open to the public each day (Sundays and legal holidays excepted), between the hours of nine a. m., and nine p. m., and on such other days and such other hours as you may see fit; that the same shall be kept in good order and repair by your Board, which shall likewise employ a competent librarian and assistants to take charge of the same and serve the public as may be necessary, and that your Board shall annually provide for and defray all the ordinary and incidental expenses of maintaining the same.

I also make this further condition that the ground upon which said building is erected, and the building and books and material therein, shall be and forever remain the property of said corporation, excepting, of course, that worn-out books and material may be disposed of in such manner as you may see fit; and I ask you to deliver to me your formal acceptance of the proposed donation upon the terms and conditions above specified.

I leave it to you to give an appropriate name to said building.

Very Truly Yours,
C. H. HACKLEY.

After the plan for the building was accepted and it became apparent that its cost would exceed the amount of the bequest, Mr. Hackley made the following additional offer:

To the Board of Education of the City of Muskegon:

Gentlemen:—It is already apparent that the sum I have devoted to the erection and maintenance of the public library and reading room will be insufficient to accomplish that purpose and at the same time provide at the outset for the furnishing of the building and a sufficient number of books for the library to be at all commensurate with the size of the building and character of the institution. I feel that these matters should not be left in uncertainty or insecurity, but that we should have from the beginning a thoroughly comfortable and inviting library building, well supplied with good literaure. I therefore propose to donate the sum of $25,000 additional, to be furnished as needed, and used under your direction in the furnishing of the building and the purchase of new books.

CHARLES H. HACKLEY.

April 15, 1891, Mr. Hackley made to the Board of Education the following proposition to provide for the maintenance of the library:

Gentlemen—You have decided to erect a large central school building on the site of the one lately burned, and it is estimated that the cost of such new building will

be about $60,000. To defray the expenses, besides using the $30,000 realized from the insurance on the old building, you will have to call upon the people to authorize by vote a loan of $30,000 upon the bonds of the district. This building should be erected without any further delay. There is also a pressing need of a new high school building which ought to be erected in 1892, if possible.

There are many of our tax paying citizens who feel that our city ought not to add to its indebtedness at the present time; our taxes are high and added burdens cannot well be borne by many of our people. While I believe that these improvements are very greatly needed and that it would be a wise policy for the city to borrow the money to execute them, yet I can sympathize with those who think we should go slowly in adding to our municipal debt.

To aid you, however, in accomplishing the two objects to which I have referred, without adding to the present burden of taxation, I submit to you, and through you to our tax-paying citizens, the following proposition:

If the people will authorize you to issue the bonds of the district to the amount of $75,000 for the purposes previously stated, bearing interest at the rate of five per cent per annum and payable not less than thirty years from the date of issue, I will take these bonds at par and furnish the money as may be needed for the purposes above set forth. In addition I will donate the entire issue of bonds so authorized, to the public schools of the city of Muskegon, to be held by your Board or such other corporation as you may designate, in trust as a fund, the interest or income of which shall be devoted to defraying the current and ordinary expenses of the Hackley Public Library forever.

I am advised that the expense of keeping the library open for the use and service of the public, estimated on the most economical basis, may be placed at $3,600 per annum. At present it slightly exceeds that amount, owing to the necessity of employing some extra help at the outset. My proposition, therefore, if accepted, makes provision for the maintenance of the library and for the erection of the two new school buildings, without adding a dollar to the burdens of the district, leaving to another generation to continue the same arrangement as long as may be thought best, or to convert the fund into some equally safe security.

The building was completed in October, 1890, and is a handsome structure of the Romanesque style of architecture. It is built of granite with trimmings of brown sandstone, and presents a massive appearance. From the main entrance a vestibule (with floor of marble mosaic, inlaid in special designs), opens into the delivery room, 31x50 feet, finished in oak, with a large mantle of carved sandstone at one side. To the right of this room is a spacious reading room, with a ladies' reading room adjoining and a librarian's office on the north. These rooms are also finished in oak and have large mantles of carved wood. To the left of the delivery room is the reference library, finished in mahogany with a huge mantle of the same wood. The book cases and furniture are also of mahogany. These rooms are separated from one another by doors and windows of plate glass, with circular fan-shaped lights of art glass above them.

Extending back from the delivery room is the book room (42x56) with shelving for 76,000 volumes. This room is lighted on three sides by windows and from above by a large sky-light. On the second floor is a reading room and director's office.

The library was opened to the public Oct. 15, 1890, with 14,570 volumes catalogued and ready for use. Since then 10,000 volumes have been added, making a total of 24,000 volumes, all of which are very thoroughly catalogued. The card catalog is used, entries being made under author, title, and subject; it is supplemented by newspaper clippings. All pamphlets are catalogued and are distinguished from books by stamping the word "pamphlet" in red ink on the cards. Fine portraits and illustrations are also catalogued. The magazines and periodicals are reviewed as they are received, and articles contained therein that are deemed of sufficient importance, are given a place in the catalog, light weight buff cards being used for the entries.

There has been a steady growth in all the departments since the opening of the library, as is shown by the librarian's annual reports. The report for the year of 1891 gives the number of books drawn for home use as 37,587, while the report for 1895 gives 60,817, an increase of 23,230. There were 11,380 readers in 1891, and 29,701 in 1895. During 1891, 3,377 students consulted the reference library; in 1895, 5,846.

JONATHAN HALL PUBLIC LIBRARY.

INTERIOR JONATHAN HALL PUBLIC LIBRARY.

The public sentiment which existed in Kalamazoo from its earliest years towards a public library culminated in 1859, when, with about 150 volumes from the township library as a nucleus, the beginning of the present fine collection was made. For several years it was merely a school library, open only on Saturdays and its privileges granted only to school children. It was moved from room to room over various stores, and the number of books that would interest older people were gradually increased until, in 1873, they were made accessible to the residents of the school district, a territory somewhat larger than the limits of the present city. Rented quarters, the best that could be obtained, rapidly became so crowded that the question of suitable accommodation was indeed a very troublesome one.

This problem was very happily solved in 1892 by the munificent gift, by Dr. and Mrs. E. H. Van Dusen, of $60,000 for the building now occupied by the library on a lot which the Board of Education selected and purchased. The material of the structure is buff sandstone in handsome architectural design, admirably adapted to the purpose for which it was planned, and centrally and conveniently located. This building was first occupied in the spring of 1893, and actual use has shown it to have been well planned for present needs and future growth.

The first floor contains a book room with a capacity for 85,000 volumes, a delivery room of ample dimensions, a spacious and well-lighted reference and reading room, two withdrawing rooms, librarian's office, wardrobe and vestibules. In the basement is another large and well-lighted reading room devoted to the use of the children, a cataloguing room and a museum containing a fine collection of shells and corals (the gift of Mr. H. M. Peck), and other smaller contributions. The second floor is occupied by the Board of Education and the Academy of Medicine.

There are now in the library 22,000 volumes, with an annual increase of over one thousand, including bound volumes of the magazines and official publications. On account of the long and steady use of the library, as many as a thousand volumes a year have now to be discarded as worn out. The working force of the library consists of a librarian and three assistants. Between three and four thousand borrower's cards have been issued to citizens, and because it is a school district library, under the control of the Board of Education, special privileges are granted to the teachers of the public schools in the use of reference books. The college professors and students and members of the numerous literary clubs, make extensive use of the library for reference and collateral reading, while the public at large regard it not only as a source of personal pleasure and mental profit, but as an all-important factor in the educational advantages of Kalamazoo, and as making the city in every way a desirable one for residence.

The average weekly circulation of books is from one thousand to fourteen hundred, of which more than one half is fiction. The decimal system of classification is in use, and the books are shelved to best serve the convenience of the assistants, literature being nearest the delivery desk, followed in order by fiction, books of travel, history, biography, fine arts, science, sociology, philology, religion, and philosophy. An alphabetic classed catalog, published in 1891, is still in use. To this have been added written lists and printed supplements, from time to time. The reading room, supplied with 150 current periodicals and papers, is open from 8 o'clock a. m. to 9 p. m., on week days, and four hours on Sundays. The library proper is open from 9 a. m. to 6 p. m. on school days, and until 9 p. m. on Saturdays. The annual expense of maintaining the library and supplying new books is about $3,000. A portion of this sum is derived from the fines collected in the criminal courts, under the State law; but the money is mainly provided by the Board of Education, out of the tax levy for educational purposes.

The Kalamazoo public library ranks in the first hundred largest free public libraries in the United States, is fifth in size in Michigan, and third in size of those maintained as free public libraries by general taxation.

Jonathan Hall, who was born in Connecticut in 1801, came to Michigan in 1827 and located a large tract of land in Ridgeway, part of which now constitutes the village. Here he married, reared a family, and died in 1883, highly esteemed by all his neighbors. His oldest daughter married Rufus T. Bush in the sixties. Mr. Bush had plenty of ambition and business talent, but no cash. His father-in-law, though not wealthy, generously assisted him to get a foothold in the business

world. This loan Mr. Bush afterward repaid, and he always expressed grateful appreciation of the assistance rendered him by Mr. Hall at a time when he most needed it. He subsequently became quite wealthy, and in 1886 proposed to the citizens of Ridgeway to erect in the village a library to be known as the Jonathan Hall Memorial Library. His plan, which he explained to the citizens in a letter addressed to them in November of that year, was to purchase a suitable piece of ground, erect thereon a building to contain a large free reading room and library, supplying all necessary furniture and fixtures, and stocking the bookcases with not less than one thousand volumes of the best standard and current literature, and the reading tables with a suitable number of magazines and papers; the building also to contain a members' parlor, adjoining the reading room and connected therewith by sliding doors, which parlor he would carpet and furnish with tables, sofas, and all other furniture necessary to make the room not only comfortable but beautiful. After the building had been completed and furnished he proposed to make a free gift of the whole to the inhabitants of the village of Ridgeway and surrounding country, as a lasting memorial to Jonathan Hall. The conditions of this gift were that an association in legal form should be organized to accept it, and that the necessary income to maintain it should be provided for; that the reading room should be kept open for two or three hours every afternoon in the year, and every evening from October to May inclusive, well warmed and well lighted, as an attraction to draw young men away from gin mills and disreputable places, the reading room and use of the books and papers in the building to be free to all persons who behave themselves, but the privilege of taking books away to be confined to members, who should pay an annual fee toward its maintenance.

The gift was accepted, the building being erected and dedicated with appropriate ceremonies Nov. 16, 1887. It is 20x40 feet on the ground and 28 feet high, well proportioned and in all respects pleasing to the eye. The body of the building is brick, with limestone foundations, cut stone trimmings, and slate roof. The interior woodwork is of butternut and pine. Entering the building and passing through a wide hallway, on either side of which are cloak rooms, one finds himself in a large, well-lighted library and reading room, nicely furnished with tables, chairs, and bookcases. On the tables are all the leading periodicals of the country; on the walls are files of the daily papers of New York, Boston, Washington, Detroit, Chicago, and of the local papers. Off the library and connected by folding doors is the elegantly furnished parlor for the use of the members.

The cost of the building was $3,500. In addition to all his other gifts, Mr. Bush gave an endowment of $2,100, which has been increased by members of the association to $2,600, the income from which is devoted to paying current expenses. Mr. Bush's son, W. T. Bush, has since added to the library some 500 volumes, which, together with those purchased from time to time by the association, make a library of very worthy dimensions for a town of the size. The library is highly appreciated and extensively used by the people of the village and vicinity. Its influence is felt to a remarkable degree by all classes of citizens. It has indeed proved a beacon light whose rays have penetrated far and which will continue its blessings for many generations to come.

A paragraph in the address of Mr. Bush on the occasion of the dedication of the building contains a hint which is commended to other communities: "The great Cooper Institute grew out of a small affair like this. This library would not have been erected had you not just built your new brick school house. This shows how faith and works go together. You might have prayed till doomsday for a school house, but it would not have come for the praying. But when you went down in your pockets and built the school house, the Lord sent you some one to build a library."

The public library of Jackson is one of the few in the State organized under the general library law. The books of school district libraries Nos. 1 and 17 formed the nucleus. The organization took place in 1885 and the formal opening was celebrated Feb. 26, 1886, in rooms rented for the purpose in the Cooley Block. The credit for taking the positive and formal steps which brought this about belongs to one man, Mr. G. A. W. Dodge, who was ably supported by the late Col. Michael Shoemaker, among others. It was said during the dedicatory exercises that the establishment of a free library marks an epoch in the upward progress of a city. It was also claimed that the library would light the city, at least intellectually, and it

JACKSON PUBLIC LIBRARY.

INTERIOR JACKSON PUBLIC LIBRARY.

would also prove itself better than a police force, for here the people could come and spend their leisure hours with pleasure and profit, and also learn the principles of self-government. The rate of taxation fixed for the maintenance of the library was 36-100 of a mill on the assessed valuation.

The 5,000 volumes which constituted the nucleus had been wisely selected, and the aim of the trustees in making additions has constantly been the accomplishment of permanent rather than temporary results. The first annual report showed a membership of over 2,000. At first the library was kept open only from 1 to 9 p. m., but within the first year the demand seemed to warrant an earlier opening and the hours were finally fixed at 10 a. m. to 9 p. m. In 1888 the rate of taxation was increased to a half mill, and in 1894 to three-fourths of a mill, always with the approval of the public sentiment of the community. In September, 1890, the library was re-classified according to the decimal system and closely catalogued. A dictionary card catalog was prepared and a printed finding list was issued. This work was entirely completed at the end of the seventh year of the history of the library. Thus the library was up with the times in methods and fully equipped for the best work. The new system has been well tested and it not only met the approval of the public, but enabled the present working force of one librarian and an assistant to accomplish double the amount of work, and so has proved economical.

Early in 1892 the trustees realized the necessity for larger and more convenient quarters. The way did not seem clear at that time for pressing upon the taxpayers the erection of a suitable library building by the city. Unhappily, no public spirited citizen came forward and volunteered to meet the expense of such a building out of his own pocket. However, the trustees were fortunate in making a favorable lease of quarters in a handsome new block conveniently located. The Bloomfield block was thereupon christened "Library Block" and bears this legend cut in stone across its front. The library occupies the entire second floor, which was arranged and fitted up in accordance with plans drawn by the trustees, and therefore embodies the latest approved ideas of library arrangement. May 1, 1894, the library was moved to its new home and the result of better surroundings and facilities has exceeded all anticipations. There are now over 15,000 books on the shelves and more than 5,000 persons hold reader's cards entitling them to draw books. Last year 87,171 volumes were issued for home reading, a gain of 8,171 over the preceding year. No account is kept of books consulted in the library and reference department, people using them as freely as in their own homes. Special interest is taken in the work of the schools, and teachers are given extra cards to enable them to take advantage of library books in their work. New books are displayed in the reading room, and are allowed to be taken home for a day, for the first month after purchase. Reference books are similarly loaned for home use. The library is wide-awake in all that constitutes modern library ideas, and the people of Jackson fully realize this fact, esteeming it as one of the most deserving and useful institutions of the city.

The men who made the first constitution of Michigan had due appreciation of the importance of the library as a factor in the scheme of popular education. They had no conception of the free public library as we know it today, since no one could then have imagined it. But they saw clearly that easy access to books was for the highest interests of the people, and they placed in the constitution a provision for the maintenance of libraries through a definite established source of revenue. That provision with reference to fines and forfeited recognizances in criminal courts has been retained in subsequent constitutions. But unfortunately it was modified in 1880 by permitting the moneys originally devoted exclusively to libraries to be diverted, in the discretion of boards of education, to general school purposes. It is easy to understand why this was done. In some school districts the sum derived from the constitutional source is too insignificant in amount to go very far toward maintaining a library; but a small library fund is better than none at all, and if boards had no discretion to use the money for other purposes, they would in time be led to supplement the fund with additional appropriations, and thus school district libraries would have been encouraged. Happily in some of the more populous districts this course has been pursued, with the result that good libraries have been created. Some of the principal libraries in the State owe their origin to the constitutional provision. Those in Detroit and Grand Rapids may be cited as examples. These libraries are strictly school district libraries and are in

charge of the Boards of Education, that in Grand Rapids directly, and that in Detroit, through a commission appointed by the Board of Education. It is, therefore, quite natural and reasonable that libraries thus constituted and controlled should seek to accomplish good results through close co-operation with the public schools.

In 1887 an arrangement was entered into between the Detroit Board of Education and the Library Commission by virtue of which the latter undertook to supply duplicate copies of certain library books for the exclusive use of pupils in the public schools. The Board of Education, on its part, agreed to become responsible for the proper usage and accounting for these books, and to provide the means of transportation between the library and the school houses. That arrangement is still in force and has been found to work satisfactorily. The experiment was begun in a small way with about 600 books supplied to the high school grades. It has been extended from time to time—first to the seventh and eighth grades, then to the fifth and sixth, and finally to the fourth; and the number of books has been increased until there are at the present time over 7,000 volumes in the school circulating libraries. These books were selected by a committee of school principals.

The books in the high school grades were chosen with reference to the school work. They are not designed for miscellaneous reading, but are used for supplemental reading and study in connection with class work. They are kept at the school to be studied in class, or are drawn out over one day for home study. As to the success of this plan, the following extract from the report of the Principal of the Central High School for 1887 is pertinent:

"In the same direction is the gain to our work resulting from the arrangement made this year with the public library. It is hardly too much to say that this has revolutionized our work in some branches. Large numbers of reference works have been furnished us to keep as long as needed. A sufficient number of copies of particular books have been furnished to enable us to get them actually into the hands of all the students. This has made it possible to broaden our historical and literary work as we could do in no other way. It has been almost equally valuable in furnishing us reference works in science. Another year the results of this intimate union with the Public Library will be even more marked. Surely, the greatest good in mere intellectual education that we can do for the large majority is in cultivation of a taste for good reading. We cannot do this by talking about books. A love of good reading comes not from precept, but from practice. We hope that the reading of good books will become so much a habit with our students that it may continue to delight them after their school days. May we not hope to educate a class of readers for the Public Library whose taste will look a little higher than the ephemeral fiction of the day?"

The books circulate from the Central High School to the eastern and western departments, each accommodating its order of classes to the others. The number of books for the high school grades at the present time is 2,577. Of many of these there are only one or two copies. Of others there are numerous copies, as for instance:

Froude's Cæsar, 22 copies; Doyle's English Colonies in America, 36; Fiske's American Revolution, 30; Green's Short History of the English People, 20; Freeman's Norman Conquest, 20; Johnson's Normans in Europe, 24; Labberton's Historical Atlas, 132; Gilman's Rome, 20; Harrison's Greece, 20; Life of Bryant, by Bigelow, 22; Life of Bryant, by Symington, 40; Life of Cicero, by Forsyth, 20; Life of Coleridge, by Traill, 15; Life of Goldsmith, by Irving, 30; Life of Irving, by Warner, 24; Life of Hawthorne, by James, 15; Life of Lamb, by Singe, 25; Life of Longfellow, by Kennedy, 15; Life of Longfellow, by Underwood, 40; Life of Macaulay, by Trevelyan, 25; Life of Washington, by Lodge, 10; Life of Whittier, by Kennedy, 15; Life of Whittier, by Underwood, 35; Hawthorne and His Wife, 20; Bryant's Poems, 12; Chaucer's Knight's Tale, 26; Collier's English Literature, 20; Jebb's Greek Literature, 20; Longfellow's Poems, 20; Welsh's English Literature, 36; Whittier's Poems, 20; Rolfe's Shakespeare's Plays, 40; Chute's Practical Physics, 25; Hall's Text Book of Physics, 20; Mayer's Sound, 20; Mayer's Light, 20; Irving's Sketch Book, 25; Shakespeare, 25; Curtis' Constitutional History of United States, 38; Bryce's American Commonwealth, 25; Bullfinch's Age of Fable, 52; Seeman's Mythology, 32; Gailey's Classic Myths, 50.

The plan having proved a success in the high school grades, in March, 1889, it was extended to the seventh and eighth grammar grades. This put library books into sixteen school houses. In January, 1892, the scheme was extended to include the fifth and sixth grades, which increased the number of schools receiving to thirty.

In 1894 the number of books was considerably increased. In September, 1895, the plan was still further extended, and the fourth grade was taken in. The books now go into fifty-two schools. The number of books was increased, so that the proportion is now about one book for every two pupils enrolled in each of the grades. The number of books assigned to each is as follows: Fourth grade, 1,507; fifth and sixth, 1,772; seventh and eighth, 1,187; making a total of 4,466.

The Board of Education provides eighty boxes for the transportation of the books, some of the larger schools requiring two. It also provides a truckman to move the boxes from the library to the school houses and to return them. The books are brought in and changed every eight weeks, or five times during the school year of forty weeks. When returned to the library, the books are changed about so that a school is not likely to get any of the same books back again oftener than once in two or three years; and as the pupils are constantly changing from one grade to another a book does not come into the hands of a child a second time. If requests come from teachers with reference to the assignment of certain books, they are complied with; otherwise the distribution is made by a library attendant.

The books selected for these school circulating libraries are not intended to be used in connection with school studies, though some of them may be and are so used. The intention was to choose good books which a child would be likely to read and enjoy, with a view to cultivating the habit of reading by putting into the hands of the child something outside his school routine, which would be attractive and profitable to him; in short, to give every child in the public schools some acquaintance with good literature. These books are in charge of the principal at each school, and are given out for home reading under very simple regulations. In very many instances they are read by other members of the family, besides the pupil to whom loaned. The pupil may also have a library card and draw books from the public library, in addition to those which he gets at school. A principal of a school relates a circumstance regarding one family in the district. It consists of five members, a father and mother, a son and daughter who are both working, and the pupil. The father is a laboring man and the mother takes in washing. The books furnished the pupil go around the whole five. After the child is through, then the older children in turn read the book; next the father, and last of all the mother, who not infrequently sits up far into the night, so that she may not lose a line. The family have constituted themselves into a kind of literary club; the hardships of life are forgotten, and between the interchange of views and the systematic reading of good books, they have widened and furnished their intellectual horizon beyond any possibility but for the means supplied them. Only through this same plan, too, have a number of poor families come to know that there is such a thing in Detroit as a free circulating library. Others who had known of its existence, were not aware that they could enjoy its advantages until some time after the school plan was in operation, believing that it it was only the well-to-do and the privileged classes who could take out books. After some inquiry they were enlightened as to the facts; and not long ago a young lady, a principal of one of the schools, took a number of her boys down to the public library and became security for them, getting each of them a regular card, so that they might enjoy the privilege of taking out any book in the catalog for the benefit of themselves and their parents.

The books as supplied the grades are as follows:

Fourth—Alcott, Under the Lilacs; Burnett, Editha's Burglar; Carroll, Alice in Wonderland; Cox, Brownies Around the World; DeFoe, Robinson Crusoe; Grimm, Popular Tales; Jamison, Lady Jane; Kellogg, Stories from Arabian Nights; Kingsley, Water Babies; Miller, Little Folks in Feathers and Fur; Otis, Toby Tyler; Page, Two Little Confederates; Plympton, Dear Daughter Dorothy; Richards, Captain January; Richardson, Eyes Right; Ruskin, King of the Golden River; Schwatka, Children of the Cold; Sewell, Black Beauty; Stowe, Uncle Tom's Cabin; Wiggin, Bird's Christmas Carol.

Fifth and Sixth Grades—Alcott, Little Men; Alcott, Little Women; Alcott, Spinning-Wheel Stories; Andrews, Ten Boys; Brown, Rab and His Friends; Burnett, Little Lord Fauntleroy; Burnett, Sara Crewe; Butterworth, Patriot Schoolmaster; Craik, Fairy Book; Dodge, Donald and Dorothy; Dodge, Hans Brinker; Ewing, Jackanapes; Ewing, Jan of the Windmill; Hale, Stories of Invention; Henty, Friends Though Divided; Ingelow, Stories Told to a Child, first and second series; Ingersoll, Ice Queen; Jackson, Nellie's Silver Mine; Kellogg, Good Old Times; Kings-

ton, In the Wilds of Africa; Kipling, Jungle Book; Lillie, Jo's Opportunity; Munroe, Derrick Sterling; Munroe, Dorymates; Ober, Knock-about Club in the Antilles; Richards, Joyous Story of Toto; Saunders, Beautiful Joe; Sidney, Five Little Peppers; Stickney, Swiss Family Robinson; Swett, Captain Polly; Taylor, Boys of Other Countries; Trowbridge, Cudjo's Cave; Whitney, Faith Gartney's Girlhood; Whitney, Leslie Goldthwaite; Wiggin, Polly Oliver's Problem; Wiggin, Timothy's Quest; Wright, Stories of American Progress, The Children of All Nations.

Seventh and Eighth Grades—Abbott, Life of Columbus; Abbott, Life of Boone; Abbott, Life of De Soto; Baldwin, Siegfried; Bolton, Girls Who Became Famous; Brooks, Life of Abraham Lincoln; Butterworth, Zigzags in Classic Lands; Butterworth, Zigzags in Europe; Butterworth, Zigzags in the Orient; Chaplin, Life of Benjamin Franklin; Coffin, Boys of '76; Coffin, Boys of '61; Coffin, Building the Nation; Cooper, The Deerslayer; Cooper, The Pioneers; Craik, John Halifax, Gentleman; Dickens, Old Curiosity Shop; Eggleston, Hoosier Schoolmaster; Farmer, Story Book of Science; Farrar, Eric, or Little by Little; Fiske, The War of Independence; Hale, Life of Washington; Hale, Boys' Heroes; Hale, Man Without a Country; Hamlin, Legends of Detroit; Hawthorne, True Stories; Hawthorne, Wonder Book; Henty, the Young Carthaginians; Higginson, American Explorers; Hughes, Tom Brown's School Days; Ingersoll, Old Ocean; Jackson, Ramona; Knox, Famous Boys; McCook, Tenants of an Old Farm; Scott, Ivanhoe; Scott, Tales of a Grandfather; Shaler, Story of Our Continent; Stockton, Rudder Grange; Towle, Life of Raleigh; Towle, Life of Pizarro; Towle, Drake, the Sea King; Towle, Marco Polo; Towle, Vasco da Gama; Wood, My Back Yard Zoo.

The Grand Rapids Public Library is managed directly by the Board of Education through a library committee of that body. It is a distinctively school library, and therefore its co-operation with the schools may be presumed to be particularly close. The system differs a little in detail from that in Detroit, with net results about the same. The principal of each school recommends a list of desired books. At the October, 1893, meeting of the Board of Education a report was adopted authorizing the purchase of some 2,000 books thus approved, to constitute branch libraries for each of the public schools. In November another list of about 800 reference books for the same purpose was adopted. To these were added certain duplicate and other copies of books from the main library which it was thought could be spared for the purpose, making in all 3,415 volumes. These books were prepared with labels, pockets, charging slips, etc., precisely as though they were for ordinary library use. They were apportioned among the several schools according to the number of pupils therein, and at the main library charged to the school.

Before the books were sent out, a special series of cards was prepared, similar in all respects to the ordinary cards in use for drawing books for home reading, except that they were designated "Branch School Library Cards." Before issuing a card to any reader entitling him to draw a library book, a certificate was required to be signed by the applicant and by a guarantor, as in the case of an ordinary library card. To facilitate matters, a quantity of blank certificates were placed in the hands of school principals, which, when properly filled in and signed, were returned to the library, and, if approved, registered, and library cards issued thereon. In the case of distant schools, a library assistant went to the schools and attended to this matter there, instead of requiring each child to visit the library. Each principal of a school was made a sub-librarian of the branch library in that school, and was instructed in the system of charging books on cards and keeping the records of circulation. The children present their cards at the school branch libraries and draw and return their books there, instead of coming to the main library.

At the close of the school year the books are called in for exchange among the schools; those which need repairs are sent to the bindery; new books are bought, if needed, and all are made ready to be sent out again at the opening of the school year in September. The statistics show that, at the beginning of the school year 1895-6, there were 5,370 volumes in the branch libraries in thirty-four schools. The total circulation of these books, from October to June, 1894-95, was 27,848.

Two objects of great importance are gained by these branch school libraries. The reading of children is not only increased, but directed by their teachers; and it places good books in the hands of children in the distant parts of the city, who otherwise could not enjoy the privileges of the library. The superintendent, teachers, and library management are unanimous in expressing their satisfaction with the results of this experiment.

The legislature of 1895 incorporated, in a measure with reference to the State Library, some wise features in the interests of libraries generally. One of these provides a scheme whereby a person in any part of the State desiring a book in the State Library, but not in his local library, may secure the use of the same. The plan contemplates that any library, upon furnishing the proper guaranty, may become an associate of the State Library and thus entitled to make use of the books of that library, either for itself or any of its patrons, for the mere cost of the transportation of the books both ways. The regulations are so simple that compliance with them is easy. They are only intended to protect the property of the State, and require as little red tape as is consistent with safety. This makes the volumes in the State Library practically available to the people of the whole State, instead of confining their usefulness to the Capitol and its immediate vicinity. That the people appreciate the privilege thus afforded them, has been amply shown by the freedom with which they avail themselves of it. As time goes on and the public becomes universally acquainted with the fact that the law provides for this general circulation of the books of the State Library, the demand for them will naturally increase.

Another provision of the highest importance in the same act is that relating to traveling libraries. This scheme is closely copied from that in the State of New York, which has been tried several years and found to be very useful. An appropriation of $2,500 was made for the purchase of books and equipment. About forty libraries have been provided, and they are in such demand that several applications are constantly on file. These libraries are composed of fifty volumes of the best literature, about one-quarter of which are good fiction, the balance being divided between general literature, biography, social and natural science, travels and history. There are also a few special libraries of books on sociological topics for special purposes. The books have been selected with the greatest care and with a desire to educate the intellectual and literary tastes of their readers. They are recent publications and on all live topics are up to date. An annotated finding list of each library is printed in neat and convenient form, and the applicants for libraries are permitted to make their own selections, if they choose to do so. These libraries are sent to the following organizations: twenty-five taxpayers in any community, granges, reading clubs and circles, associate libraries. The only preliminary requirement is that the application shall be made upon a blank form provided by the State Library. This, if made by taxpayers, must be signed by at least twenty-five of them and certified by the clerk of the town in which they reside; if made by a grange or any organized society, it must be signed by the officers of the grange or society and endorsed by a responsible resident of the State, who agrees to make good any loss that may occur. An annual fee of $5 is required to be collected to pay the cost of transportation of the libraries from and to the Capitol. With this exception, the circulation is required to be free.

Each library is carefully boxed in such form that the box may serve as a book case when it reaches its destination. The society or organization receiving it appoints some person to act as librarian, who files an agreement to care properly for the books, to circulate them in accordance with the rules established, and to make any required reports respecting their use. Full printed instructions are issued to the librarian as to his duties, and he is provided with all necessary blanks and cards, together with rules required to be observed by readers. Each reader is provided with a card, upon which is inscribed his name, and upon which are recorded from time to time the numbers of the books drawn by him. Each book is provided with a card, kept in a pocket on the inside cover of the book, upon which is entered the name of the person drawing it, and the date

drawn and returned. Thus there is a full record of readers as well as of the use of each book. All these cards are returned with the library, to enable the State Librarian to make up the statistics of the use of the books.

This simple and inexpensive plan provides a choice selection of books for any reading club or neighborhood in any part of the State. It tends to the encouragement of good reading, and in New York State has led to the establishment of free public libraries in several localities which did not before possess such conveniences. A village or populous neighborhood of intelligent, reading people procured a traveling library, and when that had been exhausted, another, and then another. Finally, the people found that books were a necessity to them, and the result was that they voted to tax themselves to establish and maintain a library of their own. Thus the traveling library was a missionary which induced the people to provide a local library. There is little doubt but that the same result will appear in Michigan.

A measure which remains to be considered is the creation of a State Library Commission, to encourage and aid in the formation of libraries. Massachusetts led the way in this movement in 1890. In the following year New Hampshire created a State Commission, and other New England States have taken the same step. In the west, Wisconsin created a commission in 1895, and the most gratifying results have followed, even in the short interval since the commission was organized. There can be no question but that library interests have been greatly developed and fostered through the direct efforts of these commissions in all the states which have thus far provided them. Generally the commissions consist of five persons appointed by the governor, and selected by him with reference to their interest in, and special fitness for, the work. The members serve without compensation other than their actual expenses on official business, which are trifling. They make it their aim to encourage the formation of libraries, to give definite advice as to the best mode of procedure, and all the details of organization, selection of books, their preparation for circulation, the rules and regulations for their proper classification, arrangement, care and use. Let us hope that the next legislature may provide for such a Library Commission for Michigan, and thus help forward the library interests of the State in a manner both liberal and effective.

The *Century Magazine* not long since said: "From almost its first number this magazine has been in the habit of pointing out from time to time the great value of free public libraries as a means for spreading popular education. In an article in this department in the *Century* for June, 1882, we said: 'A library is of more use in an educational way than a high school. The taste for good reading is the true door to culture; and if the taste for good reading be once established in a young person, there is an absolute certainty of the attainment of a degree of culture which persevering years in a school cannot give. It is not enough to have free schools. A widespread movement for libraries, which shall be either wholly free or exceedingly cheap, would be a most wholesome one. It is most encouraging to learn that within the past few years there has been a steadily growing interest in this subject, manifested in nearly all parts of the country. There are memorial library buildings going up in increasing numbers yearly, and free libraries are everywhere coming more and more to be a recognized branch of the educational machinery of every city and town.'"

KALAMAZOO PUBLIC LIBRARY.

INTERIOR KALAMAZOO PUBLIC LIBRARY.

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MICHIGAN MANUAL

OF

CHILD STUDY

ISSUED BY

DEPARTMENT OF PUBLIC INSTRUCTION

INTRODUCTORY.

Among the newer movements along educational lines, that of Child Study promises to be one of the most helpful. It is an attempt to trace the development of the child through all stages of growth. The study rightly pursued will unquestionably lead the teacher to understand each child better, to adapt her methods to the peculiarities of temperament, to be more sympathetic and sensible.

The study is yet in its experimental stage. Many mistakes will be made, too much will be expected, broad conclusions will be drawn from narrow premises; but the true teacher will see the possibilities in it, and at once join in the study of practical psychology. The interest already manifested in the movement, both by parents and teachers, is evidence enough that the plan is worthy of recognition; and it is with much pleasure that the Department of Public Instruction sends out this Manual to the teachers of Michigan, in order to call more careful attention to the subject, to place before our earnest educators a guide for future systematic and thoroughly organized work. It is hoped that this may lead to the organization of Child Study Circles and Mothers' Meetings in every locality, and a healthy impetus thus be given to the work.

The Manual contains first, a historic sketch of the Child Study movement, both national and State. Second, a careful explanation of the Mothers' Meetings, which, under able management, are proving most potent factors in the work; this is seemingly the first attempt to systematize these meetings. Third, various outlines and syllabi are given, the authors of which are anxious to collect as many reports as possible; and all who will are urgently requested to fill out one or more of these outlines, and send their reports to the author whose outline or syllabi is chosen. Fourth, an article on practical Child Study.

It is hoped that no one will fall into the error of supposing that the work is something which the *child* is to do. This is work for parents and teachers. The child does all his part, when he furnishes the specimen for laboratory practice,—namely, himself.

The committee, under whose direction the work has been done, was first selected by the State Superintendent, in order to expedite matters; and later the same committee was endorsed by the State Teachers' Association at its meeting in Lansing, December 25-28, 1895. This committee consists of Supt A. S. Whitney of Saginaw, Supt. C. O. Hoyt of Lansing, Supt. O. L. Miller of Charlotte, Harriet Marsh of Detroit, and Ada V. Harris of Ypsilanti.

With the confident expectation of much good resulting from a closer study of the child, your State Superintendent most earnestly commends this Manual to the careful consideration of the teachers of Michigan.

HENRY R. PATTENGILL.

CHILD STUDY—A GLIMPSE.

The present status of the scientific Child Study movement, according to the best sources of information at hand, renders it peculiarly the product of American genius. For that keenness of perception to divine and to seize hold of the practical, and that instinctive impulse and unfettered opportunity to apply the results attained to every day affairs so characteristic of our national life, seems to find in this new science a rich and inexhaustible mine for original research and fruitful discovery. Indeed, the movement is so thoroughly indigenous to our very soil that, although of undoubted foreign initiative, more work has been accomplished in this country than in all the rest of the world combined.

Aside from the general benign influences of Rousseau, Pestalozzi, and Frœbel, the Child Study movement may be said to have received its first distinctive impulse in Germany in 1869. During that year the Berlin Pedagogical Verein issued a circular to the teachers of that city inviting them to inventory the ideas of the children on entering school, so far as influenced by their environment. To this end seventy-five carefully selected questions, largely of local origin, were asked and answered.

The teachers, however, manifested but little interest in the movement; and, in consequence, the results were incomplete, inaccurate, and productive of little educational value other than that of suggestion. This crude beginning was supplemented by the studies of Darwin, Lazarus, Taine, and finally by the invaluable publications of Preyer in 1879–80, when the movement in this country began.

The first purely scientific study of childhood in this country was that made by Prof. Henry P. Bowditch of Boston, in 1879, and was based upon the physical measurements of thousands of children between the ages of five and eighteen years. This was followed by similar investigations by Dr. Porter of St. Louis, Missouri, Dr. Boas of Clark University, Dr. Hartwell of Boston, Dr. Bryan of Indiana University, and several others, all of whom have made contributions of great value. But indispensable to the perfect understanding of child nature as these fundamental investigations surely are, they have as yet been completely overshadowed by the study of children's minds under the masterly leadership of Dr. G. Stanley Hall, the father and chief promoter of the present Child Study movement.

Previous to 1880, when Dr. Hall began his investigations, there were no accurate scientific data showing the contents of children's minds. During that year Dr. Hall undertook to ascertain what the average Boston child might safely be supposed to know upon entering school. For this purpose one hundred twenty-three questions, based largely upon the child's relation to nature and society, were carefully selected. The children were taken aside in groups of three and carefully questioned by four expert kindergartners acting under the immediate direction of Dr. Hall. In every instance the utmost precaution and skill were exercised to secure the truth, all doubtful replies being positively rejected. The results were compiled and published in a little pamphlet entitled "Contents of Children's Minds on Entering School." This little pam-

phlet has had a wide circulation in America, and has been translated into several foreign languages.

In addition Dr. Hall has contributed many articles on various phases of Child Study, has founded the American Journal of Psychology and the Pedagogical Seminary, has lectured in all parts of the country, and finally, during the past year, has formulated, printed, and distributed to all inquirers a series of fifteen syllabi upon the following subjects: I. Anger. II. Dolls. III. Crying and Laughing. IV. Toys and Playthings. V. Folk Lore Among Children. VI. Early Forms of Vocal Expression. VII. The Early Sense of Self. VIII. Fears in Childhood and Youth. IX. Some Common Traits and Habits. X. Some Common Automatisms, Nerve Signs, etc. XI. Feeling for Objects of Inanimate Nature. XII. Feeling for Objects of Animate Nature. XIII. Children's Appetites and Foods. XIV. Affection and its Opposite States in Children. XV. Moral and Religious Experiences. Over twenty thousand returns have been made to these syllabi, and are now being worked up for publication.

In 1885 Mr. E. H. Russell, Principal of the Massachusetts State Normal School at Worcester, began the systematic study of children by a method somewhat different from that previously adopted. Instead of following a definitely outlined syllabus and searching for some particular mental fact or condition, the observer simply possesses a record of half sheets of note paper, containing headings for name and age of observer, name, or initials, age, sex, and nationality of the child observed, and the length of time between making the observation and recording it; and he carefully notes whatever crosses his field of vision. The observer is advised to conceal his purpose, to keep his notebook out of sight, and to watch the spontaneous activities of the children, endeavoring in every way to guard against reading into their minds the facts and phenomena desired. By this method Mr. Russell has collected 35,000 reports, and is preparing to publish his conclusions therefrom in a book entitled "Child Observations," which will undoubtedly prove of great value to all students of children. Mr. Russell's method has also been adopted by many teachers as an aid to the teaching of psychology, with most flattering reports of success.

Sarah E. Wiltse, a former Michigan girl and one of the four Boston kindergartners selected by Dr. Hall to inventory the contents of children's minds, has performed much valuable service for Child Study by means of original investigations and contribution of various books and articles which have had a large circulation all over the country, among which may be mentioned "Sound Blindness," "Adolescence," "Place of the Story in Education and Other Essays," and "A Preliminary Sketch of Child Study in America," from which this article is freely drawn.

In 1890 Child Study received a strong impulse in the establishment of Clark University and the election of Dr. Hall, the universally acknowledged head of the movement, as president. Acting under his inspiration and guidance much of the best study and literature has emanated from the professors and students, the following comprising some of the most valuable: Dr. W. H. Burnham—"The Study of Adolescence," "A Scheme of Classification for Child Study," "Individual Differences in the Imaginations of Child Study;" T. K. Bolton—"Growth of Memory in School Children," and "Rhythm;" F. Tracey—"The Language of Childhood;" A. H. Yoder—"Studies of the Childhood of Great Men."

G. E. Johnson—"A Study of the Educational Value of One Thousand Classified Plays and Games;" Oscar Chrisman—"The Hearing of Children," "Children's Secret Language:" Dr. W. H. Bryan—"The Development of Motor Ability;" Dr. A. F. Chamberlain—"The Child in Primitive Culture;" J. A. Hancock—"Preliminary Study of Motor Ability and the Relation of Strength to Flexibility in the Hand."

From Massachusetts, the pioneer state, a strong Child Study sentiment bent its course to the westward, leaped the Rocky Mountains, and buried its feet deep down into the rich and enriching soil of California, due largely to the untiring efforts of Miss Millicent W. Shinn, formerly editor of the Overland Monthly, and Prof. Earl Barnes of Leland Stanford University; the former, adopting and improving upon the general methods of Preyer, has made the most complete records of an individual child, her niece, yet published. She has also contributed articles on "The Visible World of a Little Child," "Early Home Environments," etc., which are full of interest and profit. The latter, following the methods of Dr. Hall, has performed a most marvelous work. He has not only made special studies and contributed articles upon "Children's Drawings," "Children's Rights as seen by Themselves," "Children's Plays," "Childish Superstitions," "Class Punishments," "Comparison and Inference," "Punishment for Weak Time Sense," "Punishment in School or at Home," "Children's Sense of Time and their Financial Sense," but he has lectured in nearly every city and town in the state, arousing and instructing the teachers, forming Child Study Circles, and distributing syllabi.

In Illinois, a most complete state organization for the advancement of Child Study has been formed with Col. Parker as president, and Dr. C. C. Van Liew as secretary. The mere mention of these names, together with those of other members of the executive committee—Bright, Cook, Everest, Krohn, McMurray, Dewey, Donaldson, and Bryan—names eminent in the educational work of today, is a sufficient guarantee that the future is full of hope and promise. The society is now in a very prosperous condition, numbering over 600 members. It has published "Handbook and Transactions," a series of pamphlets rich in thought and suggestion. It has also published many syllabi and distributed them to workers in all parts of the state. The good cause has also been greatly furthered by the establishment of "The Child Study Monthly," by Dr. William Krohn, the able and enthusiastic chairman of the executive committee. The entire organization, both in letter and spirit, may well form a model for all other states to copy. In addition, Elizabeth Harrison, head of the Chicago Kindergarten College, has contributed her "Study of Child Nature" and her "Study of Toys," two very valuable publications.

In Illinois, New York, Iowa, and now in Michigan, the movement has been officially recognized by the department of education, while in a large number of other states round tables, circles, and associations of various other kinds have been formed, and a deep and growing interest everywhere visibly aroused. To give even a brief description of the work of these states would extend this article so far beyond its proper limits that only the mere mentioning of a few of the most valuable productions, together with the names of the men and women who contributed them, will be attempted. They are as follows: Miss Schallenberger—"Study of Children's Rights as Seen by Themselves;" Mrs. Adler—"Hints for the Scientific Observation and Study of Children;" Dr. Schimer, New

York—"Mental Traits as Revealed by Physical Signs;" A. T. Smith, New York—"Mind Evolutions;" F. W. Osborn, New York—"Ethical Contents of Children's Minds;" Prof. C. A. Thurber, Colgate University—"Hints on Child Study;" E. H. Kirkpatrick, University of Iowa—"Memory."

In our own State of Michigan we are especially to be congratulated upon the prompt official recognition given this movement by State Superintendent H. R. Pattengill. By so doing he has not only directed the attention of the teachers in all parts of the State to this line of study, made it possible to supply them with the best literature at little or no cost, and stimulated to greater endeavor the few workers already in the field but he has spread broadcast the germs of a system that will eternally redound to the physical, mental, and moral betterment of the thousands of boys and girls within our borders. To him are due the profoundest thanks.

A. T. WHITNEY,

Superintendent of Schools, Saginaw, E. S.

THE MOTHERS' MEETING A FACTOR IN CHILD STUDY.

The complex and ever increasing demands of modern civilization are felt nowhere more keenly than within the sphere of parenthood; for, although many of these demands arise from false views of life—views which can become modified only as greater intelligence gives a truer idea of values—it may be stated broadly that the responsibilities which the rising generation must soon assume necessarily call for better, more careful training than has been given to any preceding age.

That by far the greater portion of this training must devolve upon the mother is, also, inevitably true; but even this is not all, for a proportionate development, with which she must keep pace, meets her in every other channel of life, until the once comparatively simple duties of home keeping and child rearing (if these may ever be called simple) have become responsibilities so great and so exhaustive that it may be seriously questioned whether the average woman, be she intelligent or otherwise, can meet her present requirements as home keeper and mother. Under these circumstances, she is certainly entitled to all the sympathy and assistance that can be given her; the good of the State so requires, and this in itself should prove a sufficient incentive to all whom special training has, in any degree, fitted to render this aid.

That the public school has been able to reach even its present degree of usefulness, while mother and teacher have been and are such absolute strangers to each other, has long been a great source of wonder to me; nor can I understand how this false relationship ever came about, unless it is assumed that the mother, under feelings of delicacy or shyness, has taken it for granted that she had no right to interfere with the teacher's business, and the teacher, unconsciously or otherwise, has not combated this supposition. Community of interest has always been considered one of humanity's strongest ties, and the child's well-being demands most imperatively a certain uniformity of treatment; yet we have here the anomalous spectacle of two women vitally interested in the training of an

immortal soul, who know absolutely nothing of each other's thoughts, opinions, or modes of procedure. How is it possible for either to accomplish the highest good under such circumstances?

Indeed, it sometimes seems as though the school can never reach its greatest usefulness until mother and teacher work together as members of one family, bound by this common interest; and it is not impossible that this next important step in education may be the recognition of this close and intimate relationship, as well as a provision for the aid and instruction of mothers along those lines in which they are most vitally interested, and in which from early marriage, lack of time, and other kindred reasons, a most necessary preparation is keenly felt. It was for considerations such as these, together with those of a more local and personal character, that the following experiment was begun:

The Hancock School, Detroit, has an enrollment of nearly six hundred pupils, eighty per cent of whom are of native born parents, while the remaining twenty per cent are divided almost equally, as to ancestry, among the English, Scotch, German, Irish, and Canadians.

After much thought and with some little trepidation, a circular announcing that a meeting for the discussion of certain subjects of interest would be held the second Thursday in October, 1895, was taken off on the mimeograph, and a copy sent to each home. Thursday came, so did twenty-four mothers, who listened in a sort of patient surprise, while I explained the object of the meeting and distributed a set of simple questions from Dr. Hall's syllabus on "Dolls," for study during the month.

This subject was chosen for two reasons: mothers were obliged to observe their children in order to answer the queries, while the novelty of the title, raising as it did a ripple of curiosity, was instrumental in bringing a greater number to the November discussion, which was much more spirited and interesting than the meeting in October. Forty people were present, every one of whom felt competent to handle the subject, and the results surprised no one more than the president. If the experiences of this little company agree with those of the community at large, children whose ancestry has been purely American for several generations, are much more barren of imagination than those of English, Irish, Scotch, or Canadian parentage, a fact worthy of consideration.

"Dolls" was followed by a study of "Children's Cries," "Fears of Childhood and Youth," "Childish Superstitions," and others of similar character—all taken from the syllabi. We found these meetings very helpful in other ways than those originally considered. Little points of discipline, such as tardiness, coming too early, mutilating neighbors' trees, loitering on corners, with many kindred topics, were brought up at the close of each discussion, the mothers giving most intelligent and cheerful coöperation, as our own reasons for such discipline were learned; in fact, this mode of procedure has grown so helpful that a note book is now kept on my desk, in which each teacher is at liberty to jot down during the month any point she wishes brought before the next meeting. These are carefully compiled and occupy their own place in the program, under the head of "Other topics of interest."

By the end of June, our association had grown much in powers of observation and expression. One of the members prepared an excellent paper on, "Do Boys require as Careful Moral Training as Girls?" which resulted in more strenuous efforts to suppress the cigaret habit and other evils to which boys are exposed. A general awakening to the importance

of these subjects brought an unusually large number to the last meeting of the year, when the association chose Mrs. M. A. C. Patterson as secretary for the year, and voted upon a list of topics prepared by themselves for discussion during the present term; a copy of this list, together with a letter issued to parents in the beginning of September and the papers presented for study this autumn, will be found at the close of this article, as their perusal will give, better than any attempt of mine, the line of thought that is being followed. In September, our attendance was fifty-four; last Thursday, sixty-two were present, and a larger number is expected in November, when Mrs. Hutchins, an octogenarian, will read a paper on the subject under discussion.

Let me say in conclusion that, since these meetings have been held, the discipline of the school has been very much easier, as mothers are naturally more willing to uphold a teacher who is personally known to them and with whose line of action they are tolerably familiar. The children themselves seem happier and more affectionate, while the stiff, formal relation of parent and teacher has given place to a sort of gentle friendliness, infinitely more valuable than the results we set out to attain. I particularly commend these meetings in any district disturbed by civil or religious factions, or inclined to feel dissatisfied with its school. Nothing so tends to unite a people as community of interest, and nothing so tends to disarm the critic as a cordial invitation to criticise.

It is but just to say that very much of the success of our association is due to the hearty and intelligent coöperationn of the teachers with whom I have the honor of being associated, all of whom attend the meetings voluntarily, taking pains to become personally acquainted with the parents of their own pupils, and always observing that rule of gentle courtesy which prevents the mention of any child's faults unless the mother particularly requests such information.

HARRIET A. MARSH,
Principal Hancock School, Detroit.

[Copy of Letter sent out in September.]

HANCOCK SCHOOL, Sept. 9, 1895.

To the Parents of Pupils attending the Hancock School:

MY DEAR FRIENDS—Our school is now commencing its fourth year, and we are very anxious to do for the children all in our power. This cannot be accomplished without an individual knowledge of each child, and this cannot be gained until the parents and teachers work together, as members of one family, toward one common end; will you not, therefore, try to become well acquainted with your child's teacher during the coming year, so that you can talk freely to her concerning your child's needs?

Our next Mothers' Meeting will occur Tuesday, Sept. 24, at a quarter to four; the following subjects will be discussed:

1. What should the public school do for the child?
2. The duty of each parent to the truant law.
3. The amount of money each child should spend for pencils, paper and other school supplies.

4. Other matters of interest.

Hoping you will kindly make an effort to be present, I am, with sincere wishes for a happy, prosperous year,

Very truly your friend,

HARRIET A. MARSH,

Principal of Hancock School, Detroit.

HANCOCK SCHOOL.

HARRIET A. MARSH, President. MARY A. C. PATTERSON, Secretary.

List of Subjects for Mother's Meetings.

September, 1895, to January, 1896, inclusive.

Sept. 23.—(1) What ought the public school to do for the child? (a) Should the government in school and that of the parent conform? (b) Three requisites of good government. (c) Necessity of teaching self-control. (2) Duty of parent to truant law. (3) Economy in school supplies.

Oct. 24.—Good health is necessary to good mentality and morality. Three things conducive to good morals: (a) Healthy constitution at birth. (b) Proper food. (c) Proper care of the body. Care of the teeth.

Nov. 21.—Effect of different foods upon the body, as bone, muscle, and flesh-producing foods. Some way in which food may lose its nutritive qualities by poor cooking.

Dec. 19.—Intemperance. (a) In how many ways may parents be responsible for their children's intemperance? (b) Intemperance in food; in drink; in pleasure. (c) Use of tobacco. (d) Necessity of teaching self-control in all things. (e) Relation of poor food and poor cooking to drunkenness.

Jan. 21.—Diseases. (a) How dangerous diseases, such as small-pox, diphtheria, scarlet fever, etc., etc., are spread. (b) Best means of prevention. (c) The germ theory.

Please *preserve* this outline for future use.

HANCOCK SCHOOL MOTHERS' MEETING.

HARRIET A. MARSH, President. MRS. M. A. C. PATTERSON, Secretary.

As this is a Mothers' Club, it is hoped that the members will feel free to write papers upon any subject of interest or benefit to the children's welfare. Please study this paper and bring it to the next meeting, Tuesday, October 22, 1895.

1. Does the children's bodily or physical health affect their mental and moral growth?

2. Three things that will help to make good moral men and women. (a) Healthy constitution at birth. (b) Proper food. (c) Proper care of the body. (d) The teeth—what kind of food should be given very young children if we wish them to have good teeth?

2. How do the first teeth prepare for the second set?

3. Is sugar good for children? Stick candy; adulteration of candy.

4. How does too much sweet food injure the teeth? Care of the teeth. Do decaying teeth ever cause throat trouble, disorders of the stomach, etc.? Why?

2. Why is a little soap good for the teeth?

3. Why will gargling the throat with very weak soap suds each morning do much to prevent sore throat and diphtheria?

The following simple tooth powder can be bought at any druggists for a few cents:

Orris root, 1 oz.; precipitated chalk, 3 oz.; mix well.

Is gum chewing injurious? Why?

Other matters of interest.

HANCOCK SCHOOL MOTHERS' CLUB.

HARRIET A. MARSH, President. MRS. MARY A. C. PATTERSON, Secretary.

Please study this paper and bring it to our next meeting, November 21, 1895.

FOODS.—Those most useful in producing warmth are butter, fat pork, cheese, oatmeal, sugar, rice, beans, cornmeal, wheat bread, leg of mutton, beef sirloin, round of beef, mackerel, and salmon.

FOODS.—Those most useful in supplying nourishment are cornmeal, wheat flour, white sugar, beans, potatoes, fat salt pork, neck of beef, cheese, butter, smoked ham, leg of mutton, milk, mackerel, round of beef, salt codfish, beef sirloin, eggs.

Why are oatmeal and cheese helpful to the bones, teeth, etc., etc.?

Why is it best to give children a mixed diet of meat and vegetables, with plenty of soup made from meat and vegetables? Why is milk good for children?

Why should nervous, irritable children be given plenty of fruit, vegetables, lemonade, etc., etc.?

COOKING.—Why is it wrong to fry meat in a pan instead of cooking it on a griddle?

Why is cotton-seed oil better than lard for cooking?

Why is it wrong to allow potatoes to soak in cold water before cooking, and why should the water be boiling before we put them in the kettle?

Why should fat be boiling before we put fish, fried cakes, etc., in the pan?

Why do we put salt meats and meats for soup to cook in cold water?

Why are hot biscuits injurious or harmful?

HANCOCK SCHOOL MOTHERS' CLUB.

HARRIET A. MARSH, President. MRS. MARY A. C. PATTERSON, Secretary.

Please study this paper and bring it to our next meeting, Thursday, December 19, 1895.

FOODS (Continued).—Iron is absolutely necessary to the human body, and is better taken in food than in medicine. Foods containing iron are spinach, yolk of eggs, beef, apples, lentils, strawberries, white beans, peas, potatoes, and wheat; it is found also in water cress.

FOODS giving nutriment to the teeth, bones, and muscles are oatmeal, rye bread, cheese.

FISH is considered a valuable brain food. Why is it injurious as a steady diet?

TEA affects respiration and causes perspiration; it is, therefore, much used in warm countries. Should it be taken at meals or when fasting? Name its good and bad effects. Coffee has a greater effect upon the heart than tea, and its tendency is to dry the skin. How should it be taken? Why is it more like animal food than tea?

ALCOHOL.—How does alcohol hinder digestion. How does it injure the stomach, liver, and kidneys? To show the action of alcohol on food, place a small piece of meat in a bottle of alcohol and examine it the next day or after a few hours. Is it true that the tendency to drunkenness is fixed before the child is nineteen, even though he has never taken any intoxicating drinks? How will self control in eating, drinking, pleasures, amusements, exercise of passions, kind of books read, etc., tend to prevent drunkenness?

Use of tobacco, its effects.

HANCOCK SCHOOL MOTHERS' CLUB.

HARRIET A. MARSH, President. MRS. MARY A. C. PATTERSON, Secretary.

(*Paper No. 2.*)

Please bring this paper to December meeting.

Below, please find a list of foods with the time needed for their digestion in hours.

Name of food.	Hours.	Name of food.	Hours.	Name of food.	Hours.
Pigs' feet	1	Turkey	2½	Boiled mutton	3
Tripe	1	Gelatine	2½	Roast mutton	3¼
Whipped eggs	1½	Goose	2½	Stewed oysters	3½
Salmon trout	1¾	Sucking pig	2½	Cheese	3½
Venison steak	1¾	Lamb	2½	Hard boiled eggs	3½
Ox liver	2	Fricasseed chicken	2¾	Fried eggs	3½
Dried codfish	2	Boiled beef	2¾	Fried beef	4
Roasted eggs	2¼	Roast beef	3	Boiled fowls	4
Roasted fowl	4	Roast duck	4	Roast pork	5¼

Is it true that cake, pie, pudding, jelly, preserves, and other rich foods often make children cross, irritable, and dull in their lessons? Why?

Will too much meat have the same effect?

Is it true that raw cabbage cut fine is an excellent food for the blood?

Is it perhaps true that the Germans owe their fine teeth to the fact that they eat rye bread?

Why is bread more digestible if eaten with butter or cheese? Why should thin people eat foods which contain starch, as potatoes, wheat, bread and cornmeal?

FOODS—*Review Questions.*

Will you, as far as possible, kindly send me as many answers to these questions as occur to you? Also as many other facts about foods as have come under your experience?

Please state age, sex, and nationality of any person you mention; write answers in ink and send to Harriet A. Marsh, 431 Third Ave., Detroit, Mich.

1. Does the child's bodily or physical health affect its mental and moral health? How? State some instances under your own experience.
2. Does the food eaten by the mother have any effect on the child's constitution, bones, muscles, teeth, etc., etc.?
3. Why are rye bread, oatmeal, milk, cheese, etc., good for the teeth? Name some other foods that are good also.

The foods most useful in producing warmth are butter, fat pork, cheese, oatmeal, sugar, rice, beans, cornmeal, wheat bread, leg of mutton, beef sirloin, round of beef, mackerel, and salmon. State your opinions on this subject.

The foods most useful in giving nourishment are cornmeal, wheat flour, white sugar, beans, potatoes, fat salt pork, neck of beef, cheese, butter, smoked ham, leg of mutton, milk, mackerel, round of beef, salt codfish, beef sirloin, egg. State your experiences.

INTEMPERANCE.

1. Does the food given to children ever tend to lead to their intemperance? How can this be avoided?
2. Does the food eaten by the parent ever lead to the same result? State what you would advise.
3. What connection do you see between intemperance and poor cooking? How can we help in this matter?
4. Do you think gum chewing ever leads to tobacco chewing?
5. Do you think tobacco chewing ever leads to intemperance? How?
6. Does the habit of spitting injure the child?
7. Does it ever lead to consumption?

State other ways in which it may be injurious.

OUTLINE FOR STUDY OF TEMPERAMENT.

The following scheme was arranged to aid those who are inexperienced in the art of classifying children.

TEMPERAMENT.

Name ....., Age .....years, ...months. Weight..... Height.....ft, ...in. Nationality of father..... ; mother..... Is health good or poor?..... Is sight or hearing defective?..... State defect. ..... .

As a child's mental is largely influenced by his physical, it is important that some attention be directed to the study of temperament.' In this study one must of necessity notice certain mental characteristics, determined by outward manifestations. It is a rare thing to find a child of a pure temperament. You will find all grades and qualities, and no two alike. It is only necessary to determine what qualities belong to each child. To do this one must be patient, honest, and observing. Study the child intelligently and you will be surprised at the facility with which, in a little while, you can determine each child's nature. Take time. Study yourself by making a personal chart.

UNDERSCORE BELOW SUCH CHARACTERISTICS, OR TRAITS AS YOU NOTICE IN THE CHILD.

		Nervous.	Sanguine.	Bilious.	Lymphatic.
Color	Hair	Light brown or white; fine	Red or auburn	Black, strong, and abundant	Light brown; flaxen.
	Eyes	Blue or light gray; bright	Blue	Black, keen	Brown, gray, lusterless.
	Skin	Pale, clear	Fair—reddish tinge	Dark, dry, sallow	Colorless.
Form	Body	Slim, delicate, often tall	Full chest, rounded limbs, thickset	Solid, thickset	Soft flesh, often corpulent.
	Face	High and broad forehead, narrow chin	Rounded, a changing color in cheeks	Square	Rounded, with languid expression.
	Neck	Long, slim	Short	Short, often full at the back	Short, very full.
	Nose	Narrow	Outspread	Outspread	Outspread.
	Lips	Thin	Thick	Thin	Thick.
	Head	Large, full in forehead	Round	Rounded, full behind the ears	Large, rounded.
	Motions	Quick	Quick	Decisive	Slow.
	Speech	Rapid, often undecided	Decided, frank	Decided, ready, and informed	Slow.
Mental characteristics		1. Impulsive, animated, rapid, hasty conclusions	2. Impulsive, buoyant, and cheerful	3. Serious, makes thoughtful conclusions	4. Slow, makes thoughtful conclusions.
		5. Likes both intellectual and muscular pursuits	6. Muscular pursuits preferred	7. Business pursuits preferred. Good at all	8. Muscular pursuits avoided.
		9. Excitable, readily provoked, easily reconciled, imaginative, sensitive, particular, fastidious.	10. Excitable, easily provoked, easily reconciled, emotional	11. Passionate, jealous, revengeful, unscrupulous	12. Not excitable, forgives but never forgets.
		13. Enduring in work	14. Not enduring in work	15. Enduring in work	16. Enduring in work—a plodder.
		17. Irresolute	18. Ardent—not persistent	19. Eager, earnest, persistent	20. Persistent—not ardent.
		21. Likes poetry, music, nature	22. Likes music, art	23. Likes mathematics	24. No special preference in study
		25. May be melancholy, given to dreaming, or great irritability	26. Likes gayety, has tendency to exaggeration; tears flow easily, but soon pass away	27. May be cruel or generous—self-reliant always	28. May be practical, cheerful, or patient and self-reliant.

SUGGESTIONS.

Having determined the leading characteristics of the child, the following suggestions may be helpful in enabling teachers and parents to make a practical application of Child Study.

1. Two pupils who are alike should not be put together. Place a nervous pupil by the side of a bilious or lymphatic temperament.
2. Better not scold at all; but if you do, do not scold the nervous pupil.
3. Ask the most questions of the lymphatic temperament.
4. Be collected, cool, and firm with the nervous, sanguine pupil. When you say "No" stick to it.
5. Study the motive of the apparent stubborn pupil. Lead rather than drive. If you are nervous yourself, be careful of your treatment of the apparently stubborn, lymphatic boy or girl.
6. Nervous-sanguine pupils are easily excited. In questioning be careful how you manage them. Give them time to think.
7. Correct the nervous pupil privately.
8. The bilious-lymphatic-nervous children require careful treatment. Gain confidence, talk with them alone, do not threaten, manage them yourself.
9. Ascertain what home influences have been at work around the child and endeavor to correct their influences, if bad, or to assist, if good.
10. A nervous pupil *will* move about. You must be very considerate, mild, and cautious in his management.
11. The lymphatic pupil is *slow*. Hurry him all you *can*.
12. The stubborn pupil is an annoyance. Don't notice it and, as soon as he finds that you do not, he will stop being obstinate.
13. The sanguine pupil likes life and gayety. Do not repress him; he will cheer you up.
14. Secure the friendship of the bilious pupil and you will have a good friend.
15. When you have determined bad traits in a child endeavor to correct them; thus you may change his temperament.

The following general questions, as well as many others that will suggest themselves, will enable one to know more of the child nature. Observe that many children have not a few traits in common.

Notice if memory is quick or slow, and if it is enduring. Does the child forget slowly? What is memorized most quickly—names of events, persons, places, or thoughts? Test auditory memory, visual memory. Is the child attentive and easily interested? In what most easily interested? Is there a keen sense of right and wrong? Name acts considered wrong. Does he decide questions for himself? About what does he ask questions?

Does he write well; draw well? What does he like to draw? Read a story or poem to the child and ask him to draw pictures illustrating it. Does he exaggerate? Is he truthful? What stories does he like best? What form of punishment is most effectual? Have you noticed if the

child has good and bad days? Are they frequent? Has he self-control? Does he readily influence his companions? Is he a leader? Do you regard him as a good or poor pupil? In what does he excel? What is his ambition? Does he make few or many gestures?

What do you know of his home? Do you know of any inherited traits or tendencies?

Send reports of any observations that you may make, either upon a blank which will be furnished for that purpose, or upon separate sheets to

C. O. HOYT,
Supt. of Schools, Lansing.

SUGGESTIONS FOR STUDY OF INDIVIDUAL CHILDREN.

USED IN MOTHERS' CLUB, BUFFALO, N. Y.

PHYSICAL GROWTH AND DEVELOPMENT.

I. Formation of Habits.

Name of child; age, place of birth; weight; height.

1. Is the child impulsive? Constantly trying to perform some new feat? Active and restless? Always so? Or is it retiring and slow to make experiments in doing new things?

2. When did you first notice that it began to form settled habits? What seemed to lead it to form these habits; did it imitate some one? Does it discover some new movement and, being delighted with it, try it over and over again?

3. Does it form habits readily now? Does it easily give up old habits for new ones? Give some examples.

4. What seem to be the sources that lead to the formation of new habits—imitation, instruction, command of parent or teacher?

5. Whom does the child imitate, parents, brothers, or sisters? Teachers, companions, or heroes in stories? Does it copy the *actions* of people or their dress, manner, and tone of speech, facial expression and the words they use?

6. Is it slow in forming unselfish habits? How often does it have to repeat an act, in order to make it habitual? What kind of actions seem to be hardest to become habitual, courtesy towards superiors, promptness in performing duties, cleanliness and carefulness about dress, etc.? Has it been required to obey superiors promptly? In forming a new habit has it been allowed to break over once in a while?

II. Fatigue.

1. What diseases has the child had? How long did they continue? Did they leave any apparent effects? Does it sleep well? Does it have dreams or talk in its sleep? Does it walk in its sleep?

2. Does the child use tea or coffee or stimulants of any kind? Does it eat nutritious foods, such as brown bread, meat, and so on? Does it dislike any special kinds of food? Do digestion and nutrition seem to be good?

3. Is the child nervous? How does it show it,—in uncontrolled movements of the face, hands, or any part of the body? Note especially if there is any twitching of the eyelids or of any part of the face, grinding of the teeth, muscular restlessness.

4. If there are signs of fatigue, notice when these manifest themselves, after a day at school, upon rising, or when? To test the child further at such times, ask it to extend its arms above the head with eyes closed, and notice if there is swaying, sinking, or twitching of either hand. Ask it to stand quite still for one or two minutes, and notice any twitching movements.

5. Is the child irritable after a day at school? Does it get weary? Cry easily? Does it get angry whenever it is crossed? Give any other signs of fatigue that you have observed.

6. If these evidences of fatigue are present, what effect does a good play have in restoring the normal condition of things? Does the child show signs of fatigue more easily when it does not eat well than at other times?

III. Keenness and Loyalty of the Senses.

1. Has the child any defect of vision? Does there seem to be a strain about the eyes, as though an effort were being made to see clearly?

2. Has it any defect of hearing? Has it ever had trouble with its ears? Can it distinguish the tones of familiar musical instruments; distinguish slight differences in pitch; appreciate melody and harmony in sounds?

3. Does it seem keen in distinguishing things by touch; tell different kinds of cloth by touch; seem sensitive to slight differences of temperature?

4. Does it seem to breath easily through the nostrils? Has it any catarrhal affection?

IV. Physical Characteristics.

1. Give the form, size, and carriage of head; height and breadth of forehead; shape of nose, mouth, and jaw.

2. Are the shoulders carried erect or stooping?

3. Is the chest expanded or contracted? With full or imperfect breathing?

4. Have you noticed any abnormal conditions of the arms, legs, hands, or feet? Is the child self-conscious in their management?

5. Does it sit and walk erect with chest prominent?

6. Are its movements vigorous, languid, controlled, or nervous?

7. Did it learn to talk early and readily? At what age did it begin to walk?

8. Does the child resemble father or mother in certain physical characteristics? If so, in what? Does it resemble any remote ancestor?

(Note.—Continue answers on back of page or on separate sheets when necessary.)

DR. M. V. O'SHEA.
University of Buffalo.

TOPICAL SYLLABI FOR CHILD STUDY.

(*New Series, School Year 1895-6.*)

III. The Beginnings of Reading and Writing.

N. B.—In all cases state age, sex, and nationality of children observed.

I. Parents and teachers are requested to send in collections of papers from home, kindergarten, or school, illustrating the following points in children learning to write:

1. Earliest attempts at writing (or drawing) before any regular instruction. Also specimens of writing by the word or sentence methods before the child is taught the separate letters.
2. Specimens showing handwriting of same child at different ages.
3. Collections of children's spontaneous drawings to illustrate stories, especially of children from two and one-half to seven years of age.
4. Specimens of mouth-writing, foot-writing, writing with the eyes closed, writing upside down and backward, mirror writing, and any other unusual forms of children's writing, especially such as they spontaneously use, whether from defect, caprice, or interest.

II. Describe (a) any spontaneous or untaught manner of holding pen or pencil, or of placing the paper in position for writing; (b) accessory, automatic movements of tongue, lips, hands, eyes, head, legs, feet, or body, while writing; (c) ditto while reading. Describe cases in which the eye-motor-adjustment is slow in developing, so that the pupil has difficulty in following the line and helps himself by putting his finger on the word, sliding card along, etc. Does large print help such cases?

III. *Children's early interest in reading.* Cases in which children have early shown an interest in writing, playing, or pretending to write and mail letters, pretending "to read," interest in books, inscriptions on monuments, coins, etc.; expressions such as "Read the picture," "What does the picture say?" and other doings, showing their appreciation or lack of appreciation of the nature of written and printed words. Early cases you have observed of a child recognizing when the book is right side up.

Cases of early discrimination between print and writing. In which does the child at first show most interest? How early do you observe "the idolatry of the printed word?" *e. g.*, "the book says so."

In what order does the child learn to recognize the letters? Which ones does he pick out first and most easily? Give his favorite and disliked letters. Instances of anthropomorphization of letters or numerals (*e. g.*, "B is a fat butcher with a large white apron on"), or other mnemonic or sentimental associations of color, feeling, form, etc., with the shapes of the letters printed or written. Early interest in circles, triangles, squares, etc.

IV. Cases of unusual slowness or inability to learn; (a) to read or (b) to write or (c) to spell.

Cases of early or very rapid or spontaneous learning of (a) the alphabet or (b) reading or (c) writing. The same of musical notation.

V. Children's games or plays which give exercise for spelling, reading, writing, or drawing. Describe early or pronounced cases of the passion for scribbling and of the autograph craze; interest in rebus, charades, acrostics, puzzles, ciphers, puns, etc. Secret languages in cipher by substitution of other symbols for the letters; systems of shorthand, whether original or learned.

VI. When do you first observe a difference between the handwriting of boys and that of girls? What are some of the early differences? Can you identify the handwriting of a seven-year-old child as readily as of a ten-year-old? What are the early signs of individuality in the handwriting?

Send samples, if possible, to

G. STANLEY HALL,
OR HERMAN T. LUKENS.

Clark University, Worcester, Mass.

TOPICAL SYLLABI FOR CHILD STUDY.

(*New Series, School Year 1895-6.*)

IV. Studies of School Reading Matter.

I. Will you kindly note the title and author of any book, article, piece of prose or poetry that distinctly *impressed its mark* upon you as a young child, or before you were twenty or twenty-five. What are some of the lines, proverbs, phrases, incidents, or ideas that your memory still retains most vividly and that you most heartily believe in? Try to tell just how, and, if you can, why it affected you, specifying your age at the time. Have you repeated anything from this to children since, or advised them to read it, and, if so, has it impressed them as it did you?

II. Have you either observed or read or heard of any book, author, or piece, good or bad, leaving its special mark on any child or youth? If so, name it and describe its effects as above, not forgetting to state age, sex, and general physical and mental traits.

III. Can you describe cases of excessive passion for reading that has kept a child too much in doors, injured eyes, or caused precocious or excessive bookishness, and its results?

IV. Can you give cases of too exciting reading that has affected nervous system, sleep, or made daily life seem dull and uninteresting by comparison?

V. Do you know any specific case of bad moral consequences due to bad reading? If so, please describe it. What are the worst and what the next worst books or classes of books for the young?

VI. Have you observed any sudden change in reading habits, as silent reading without lip motion and increased rapidity, or sudden changes in the class of books preferred and why, or transition from excessive reading to none at all? Give your habits and belief as to course versus more desultory "preference" reading.

VII. Look over the following topics and see if you can name a poem, song, story, declamation, recitation, book, article, or chapter, bearing upon one or more of them, that you think has rare and exceptional merit or virtue for children and youth, stating how and at what age its culture power is best made effective:

1. *Celestial phenomena*, as sun, moon, stars, sky, clouds, rainbow, northern lights, wind, rain, snow, eclipses, aurora. 2. *Seasons*, their characteristic phenomena and occupations. 3. Inanimate terrestrial objects and scenery, as rocks, hills, vales, gorges, magnets, crystals, fire, water and its various forms and bodies. 4. *Animate nature*, as flowers of each common variety, shrubs, plants, and trees, actual or mythical, forest, lower and higher forms of animal life, pets, domestic animals, food products. 5. Primitive man or savages or child life. 6. History —ancient, contemporary, or modern. 7. Biography. 8. Travel and adventure. 9. Standard literature—ancient or modern, especially good journal reproductions of these. 10. Mythology. 11. Art and invention. 12. Practical daily life and events. 13. Moral and religious.

VIII. Will you select some part of Dante, some play of Shakespeare, part of the Niebelungen Lied, a Greek drama, or any other *standard* or classic literary work suitable for the purpose, or, if you prefer, something suggested by the above topics, and treat it as follows: (a) Read it till it is *very* familiar, and read about it till you are at home in it; (b) select several grades or classes of children and *tell it* to them in the best and most effective way you can; (c) have them reproduce it in writing for you; (d) study these reproductions till you see what incidents and phrases stuck most effectually in their minds, or impressed them most deeply; (e) tell it again and again with ample poetic license, enlarging on the appreciated points and abating those less interesting, and so on, long and patiently, till you are past master of all the arts, gags, or points you can possibly bring out of your piece, and till you are clear for just what grade and age you can make it most effective; (f) write it out carefully so that n form and substance it shall illustrate all you have learned, and be thus edited in the best possible way so every point will tell and can be reproduced by the children.

IX. Name the best book or article on the subject of children's reading you know. Will you be one then to contribute this to what has been called the school canon or reading Bible of the future, to be made up of the best literature, which we have no right to let the children leave the grammar school ignorant of, properly adapted and graded?

Get children to coöperate by questioning collectively and talking individually with them, and note age, sex, grade, and nationality, as is desired in all cases, and send returns to

G. STANLEY HALL,
OR JOHN C. SHAW.

Clark University, Worcester, Mass.

TOPICAL SYLLABI FOR CHILD STUDY.

(*New Series, 1895-6.*)

V. Moral Education.

Will you aid in a concensus study of the subject by writing and sending anything from your own personal experience or observation in others that a careful reading of the following items may suggest?

I. Reflect which teacher or teachers from kindergarten to college or professional school, or in Sunday school, you have liked best and been influenced most by, and then try to state wherein the influence was felt. What qualities impressed you most, and how? Account, if you can, for the exceptional influence of that particular teacher. Was it generally felt, or peculiar to you and your set? Was it connected with dress, manner, voice, good looks, religious activity or piety, bearing, learning, etc., and how did each salient quality affect you?

II. What playmates, intimate cronies, or friendships have you had that affected your moral nature for good or for bad? Describe concisely each such person, physically and psychically. What temperament and what were the qualities that especially influenced you, and how? What is your own temperament?

III. What were your ethical relations with your parents? What kind of personal influence emanated from your father and from your mother? What in their example and in their precepts affected you? Give incidents and details.

IV. Have other persons than the above influenced your life much, or have you had special attractions or repulsions to individuals, either older or younger, of the same or opposite sex, or to whom you were inclined to go for counsel and conference in confidential matters? Describe the influence of such association.

V. What games have you preferred and what has been their influence n developing manliness or womanliness, sense of justice and fair play, honesty, perseverance, hardihood, physical strength, and what recreations do you prefer and why? What is their effect?

VI. What studies, subjects, or lines of reading, or intellectual interest, have affected you for good or bad, and how? Did mathematics deeply impress you with universal law; astronomy, with sublimity and reverence; chemistry, with the order of the infinitesimal; botany and zoölogy, with the miraculous nature and persistence of life? Have you experienced special interest in any line of study; and, if so, can you tell what it is about it that attracts you, and how it has affected you for good? Can you describe or account for any aversion you have felt for any special study?

VII. What are your favorite books, and why? Name a few in the order of the benefit you have received from the same. Name the pieces, articles, poems, or proverbs, that have come home to you, and why and how. Name, also, any literature you have ever read or heard of, whether in the ancient classics or the modern newspaper that seemed luminous on the general topics of this syllabus.

VIII. What punishments or rewards have you ever had that did you good or harm? State the case and its results.

IX. Think over cases of special self-denial or self-control or effort you have put forth to be and do good. Also your special lapses and see if you can account for the determining element in each. Write as intimately and confidentially as you can of your besetting fault or even vices. What is good and bad for it?

X. State a few conscience cases in yourself or others, describing the circumstances that helped or confused them.

XI. What has been the effect on yourself or others of direct moral inculcation, whether at home in the form of a plain talk, a good dressing down, or advice not sought, or preaching in and out of the pulpit, and school or college instruction in morals? What book, system, or idea in each has been morally helpful?

XII. What has been the effect of direct religious inculcation, and what changes of religious views have affected your moral conduct, your conscience and sense of right? Have liberalizing theological opinions made you better or worse, and how?

Send returns to

G. STANLEY HALL,
OR N. P. AVERY.

Clark University, Worcester, Mass.

TOPICAL SYLLABI FOR CHILD STUDY.

(*New Series, School Year 1895-6.*)

I. Peculiar and Exceptional Children.

If you desire to receive the syllabi of this school year, to coöperate in collecting data, and to receive the final reports of the work, you are hereby respectfully invited,—

I. To think over your own childhood and consider if you were a striking illustration of any of the following types, and, if so, describe your case.

II. Consider if you have any friends who would come into any of the classes below, and ask them to describe their own case.

III. If you have children of your own, or if you are a teacher, if any of your pupils, past or present, are strikingly exceptional, describe them.

IV. If you are a college or normal instructor, explain very fully what is wanted, and ask each pupil to describe one or more such cases in a composition, essay, or a theme in psychology.

V. State the salient points concerning any exceptional children you ever read of, whether fact or fiction, referring to the source, if you can.

The following are types suggested to select from, but any others will be welcome:

1. *Physical*: Exceptional beauty or ugliness; largeness or smallness; any bodily deformity; conspicuous scars or traumatic lesions; defects of sense or limb, as dimness of vision or slightly under normal hearing,

weakness of spine, legs, or arms, etc.; exceptional strength, agility, clumsiness, or deftness, or gifts of sense; any other marked physical peculiarity.

2. *Psychical*: A child of exceptional courage or timidity; cleanliness or dirtiness; order or disorder; obedience or disobedience; truth telling or lying; cruelty or sympathy; selfishness or generosity; loquacity or silence; frankness or secretiveness; buoyancy or despondency; daintiness or gluttony; a blasé or otherwise spoiled child; a doubter, investigator, or critic; a buffoon; a restless, fickle, scatter-brain or a tenacious child; an ugly and ill-tempered child; a careless, easy-going or a fastidious child; an inquisitive, imaginative, or poetic child; a teaser or hector; a nervous child; a querulent, whining child; a dignified and self-poised child, or one who acts habitually with abandon.

It is not a description of one or more of the above traits that is wanted, but an account of one or more individual cases where one trait or group of traits is so marked as to cover the entire character of the child, to be known to all who see much of it, to therefore bear on the child's future career.

Note in each case, if you can, whether the trait is hereditary; in which parent, how far back can it be traced, and how marked was it in the ancestry? To this point the greatest importance is attached, and it should receive special attention.

Give briefly, specific acts or instances of the manifestation of the trait.

State how each case *has been* treated at home and in school, and how *you think it should be.*

Always describe each case with the greatest conciseness and with the greatest fidelity to fact.

Always state age, sex, nationality, complexion, and temperament.

Always write on but one side of your paper.

Begin every new case on a new page.

Write at the head of the first page of each case one or more words designating the type, as a dirty child, a precocious child, etc.

Send returns to

G. STANLEY HALL,
OR E. W. BOHANNON.

Clark University, Worcester, Mass.

FROM CHILD STUDY MONTHLY.

By permission of Wm. O. Krohn, editor of the Child Study Monthly, we reprint the following extracts from an article written by him and published in the December issue of that valuable little journal, trusting it will prove of much practical value to those just becoming interested in this new movement.

PRACTICAL CHILD STUDY—HOW TO BEGIN.

How am I to begin to study the child? As Dr. Hall says, "If but one teacher in a hundred is interested in Child Study, it is because they do not know how to go at it; how to look; what to look for." That there is somewhat of a gap between the scientist and the teacher in this department of observation is unquestionable. In this and subsequent articles we hope to bring some of the methods of Child Study to the attention of the teacher in a clear, practical manner, that the average teacher may learn to really *know* the average pupil in the average school.

The writer sincerely desires to help teachers, parents, kindergartners and children in their lofty common interests. Only simple, available tests are proposed. No apparatus difficult to obtain is required for making the tests herein outlined and suggested. The observations should be made with the greatest accuracy. Your data will then in all probability be of some scientific value in the endeavor to settle some of the pressing questions now upon us. The material needed for making the tests may be secured through the writer, from the Laboratory of Psychology of the State University of Illinois (address either Champaign or Urbana). Such apparatus will be supplied at actual cost as subsequently noted in this article. Thus service will be rendered to all readers of the Child Study Monthly, not only in Illinois, but in any state or country. If the results of the tests are sent to the writer, they will be carefully edited, conclusions to be drawn will be noted and published in the magazine. A large number of such experiments made upon a large number of children will be of inestimable value, if the results are properly collated, edited, and compared.

I. Tests of Vision.

The vision of 65,000 school children has been tested. The tests recently made under the supervision of the writer upon 21,000 school children in Illinois revealed that defects in vision increase from grade to grade with the increase of school work. Thus the visual defects are greatest, that is, vision is worse, in children in the fourth or fifth reader grade than it is in the first reader grade or kindergarten. You are not a skilled optician, therefore you will be unable to tell just exactly *what* is the matter with a particular child's defective eyes, but it is possible for the fact of defect to be known.

How to Test Vision.

Get Snellen's Test Cards. (These will be furnished by the Psychological Laboratory of the University of Illinois, for ten cents, postage paid. Address as suggested above; or you can get them at a higher price of any firm dealing in optical supplies.) The distance at which any of the types should be read easily is shown on the card—some at a distance of ten feet, others at twenty, thirty, forty, fifty, sixty, seventy-five feet, etc.

In testing, the child should walk *toward* the card. Test each eye separately, holding the hand or card before the eye not being tested. This is done for the purpose of finding out which eye is the stronger and least defective. Seldom, if ever, are the two eyes perfect mates. Note whether the right eye is the stronger in right-handed children and the left eye in left-handed children, or not. Make these formal and accurate tests if possible. The results will more than repay the time and trouble expended. Several teachers have found it necessary to rearrange the seating of their pupils after making the eye tests, according to their visual capacities, because, on testing them, it was found that some of the children who could see the best had front seats, while others who had very defective vision occupied the back seats. The trying difficulties of those having defective vision give rise to "Eye Strain," and from this the habitual and chronic "nervous" or "school headache" develops as a natural consequence.

If you cannot make the formal eye tests with the optical cards, as already suggested, then at least write a sentence on the blackboard, ordinary size and style, with a view of discovering which children can read it and at what localities. Can all the pupils read it from the rear of the room?

In this connection let me remind you to note the printed type in the text-books used by your pupils. Among the main points to be considered are the size, thickness, and shape of the letters. Type should be legible at the distance of twenty-two inches. To this end the letters must be at least 1.6 millimeters high. Smaller type is injurious to the eyes of the child. Many of the school books contain letters that are entirely too small—*e. g.*, atlases and geographies. As to the style of type and the form of the individual letters, we must remember that in reading we always glance along the line at a little distance above the center of the letters. We should remember, then, that the *upper part of the letters* are of especial importance. These should always be open and plain. Again, the shorter the line, the more easily it can be read. The distance between the several letters as well as the distance between the words is also of prime importance. The page should always be well leaded, making good interlinage. As Dr. Hermann Cohn puts it, "In the future I would have all school authorities, with measuring rule in hand, prohibit the reading of books not conforming to the following measurements: The height of the smallest 'n' must be at least .06 inches, the least width between the lines must be .1 inches, the least thickness of the 'n' must be .01 inches, the shortest distance between the letters must be .03 inches, the greatest length of the text line must be but 4 inches, and the number of letters on a line must not exceed 60." Furthermore, all type

should be black, on paper that is untransparent, with a yellowish (as in manilla paper) or grayish white tint. Of the books used in our schools, our reference books, such as our atlases and our dictionaries, are the most poorly printed. We all recognize that school books are better printed in the United States than in any other country in the world but that does not mean that there is no further room for improvement. With respect to writing, the *vertical* script is by far the best for th child's eye. Remember that it is an incontrovertible truth that *defective vision will eventually cause nervous disorders in any child.*

II. A Test of the Powers of Visual Comparison.

This test can also be employed in any school room. Give each child a clean card with nothing but a single horizontal line drawn or printed thereon, like this:

Ask each pupil to bisect the line exactly in the middle, or as nearly as he can, judging the middle point *with the aid of the eye alone, using no rule or measure.* As a matter of fact no pupil will divide the line at exactly the middle point. The amount of error can then be measured with a millimeter scale and then calculated in per cents with facility and accuracy. Now this exercise tests not only the visual judgment or powers of visual comparison, but it also *cultivates accurate perception.* The child observes more and more closely with each successive test, and may finally reach absolute perfection in his judgment. Close attention is also induced.

(Cards of proper size with standard lines printed thereon will be furnished at twenty cents per hundred).

III. Visual Memory.

Draw a line six inches long, on blackboard. Ask all to observe it closely, then ask each pupil of the class to reproduce it; *i. e.*, each draw a line as nearly as possible of the same length as your original line. Perhaps in the first exercise you will have lines of as many different lengths as you have pupils. Measure the error in each line, and calculate the grade of each pupil for visual memory in per cents. Or to make it easier and more simple, draw the standard line as suggested above; then erase and draw five lines of different lengths, one of which is the same as the first or standard line, the other four of various lengths, but each differing only a little from the standard line, being either a trifle longer or shorter. Number these lines and then ask your pupils to select the one of the five which is like the original standard line which you drew and then erased. An attentive eye and a good visual memory certainly result from this cultivation.

IV. Accuracy of Touch.

We should also test the child's accuracy in touching a given point. Place before the child a card upon which there are several small dots and request him to touch one of the dots with a pencil, the arm being held free above the desk. His hand will not move to the exact point which his will commands, and he is sure to make some sort of an error. After he makes a dot, you can measure the error by taking a ruler or pair of compasses, estimating the distance between the original dot that you designated for him to touch and the one actually made by the child.

V. Accuracy of Movement.

Another interesting test, but at the same time very simple, is to lay before the child a sheet of paper upon which have been made two dots separated by a distance of from three to five inches. Ask him to connect the two by a straight line without the aid of a ruler, the paper being so placed that such a line will necessarily be horizontal. To measure the error of the child, for he will surely make an error, lay a straight ruler across the dots and you can easily detect the deviation from the true straight line.

Every teacher has noticed the child who sits continuually with his mouth partly open and face expressionless. The teacher will notice if he be a good observer, that the dull pupil has an open mouth, and that the face appears long, drawn down, as it were, when compared with the bright, quick-learning pupils. Also the voice of the stupid pupil has a dull, thick, nasal sound, such as we all have when the nasal air passages are clogged as in a bad cold. This elongated, stupid looking face of the dull pupil is due to the adenoid growth in the vault of the pharnyx. They should be removed by the surgeon. This can be done with great ease and facility. Multitudes of children can thus be saved from intense, acute chronic suffering, as well as kept out from under the cloud of black-damp stupidity. We owe it to school children to examine their hearing as well as vision. It is a startling fact that *nineteen per cent* of the pupils in our public schools have defective hearing in one ear or both. It does not seem to be a well known fact that impaired hearing is so frequently met with. Children thus affected have been accused of being lazy, listless, inattentive, and stupid, when in fact their ears were at fault.

It should also be noted that *breathing through the nose* is known to be essential to physical and mental vigor, memory, concentration of attention, mental quickness, and the like. You can easily determine whether or not your pupils are able to breathe through the nose.

VI. Simple Method of Testing the Hearing.

About 60,000 children have had their hearing tested. How? A stop-watch is usually employed. The pupil is seated blindfolded and the ear not being tested should be closed with a bit of soft cotton, not pressed very far into the ear, or the ear can be held shut. Hold the stop-watch

on a line with the ear. Let it begin to tick at a distance of twenty-five feet from the ear. Notice the distance from the child at which the ticking can be heard by him when the watch is brought *toward* the ear. Use the same watch in testing all the pupils, as watches differ in the loudness with which they tick.

A simpler method, not quite so accurate, however, is to simply use the voice. Dictate sentences, words, or better, consonants and figures, and bid the pupil write them. Make a note of those pupils who demand an increase of loudness in order to hear what you dictate. You are thus enabled to separate those who have defective hearing from those whose hearing is normal.

VII. Tests of the Auditory Memory.

The test the writer has in mind is not at all complicated. It consists simply in the reading of a series of consonants or numbers, and asking the child to repeat as many of them as he can remember. You will find here examples of a series of tests that I employed, with the assistance of one hundred or more teachers in the state of Illinois, in testing the auditory memory of school children.

School Tests for the Auditory Memory. (Figures.)

(1)	4	9	6	3	7	5	1	8
(2)	5	7	2	6	9	4	8	3
(3)	2	5	8	6	4	9	7	3
(4)	6	8	4	7	1	9	3	5
(5)	3	5	1	6	7	9	4	8

The first set of these tests is made up, as you see, of numerical digits. The teacher reads a single series, for example, these: 4, 9, 6, 3, 7, 5, 1, 8. About ten seconds are employed in enunciating these numbers; immediately after they are read, the child is asked to repeat or write as many of them as he can remember, and in as nearly the same order as possible. The second series of tests given here is made up of letters, consonants only being employed, and the test is performed in the same manner.

School Tests for the Auditory Memory. (Letters.)

(1)	b	k	l	z	s	d	r	n
(2)	t	r	z	g	h	l	c	m
(3)	s	g	r	t	n	k	l	d
(4)	t	g	d	k	x	m	z	r
(5)	l	w	t	m	p	x	k	z

Perhaps one child will remember five digits or letters, in that case his auditory memory is expressed as a fraction of the task set before him.

If he remembers six out of the eight members of the series, his grade for auditory memory would be six-eighths or 75 per cent. Some one else will have remembered more or fewer, and his grade would of course be greater or less.

These tests may be modified for any grade of pupils, as may be necessary. In the highest grade probably as many as ten or twelve digits or letters can be employed in each series; in the middle school grades possibly no more than eight members should be employed in a series. In the still lower grades it would be well not to employ more than six figures in each series; and in the lowest grades even a short series should be read over three or four times, so that the child's powers may not be too heavily taxed.

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S. O. Hartwell, Kalamazoo.
F. D. Haddock, Holland.
B. A. Holden, Hastings.
E. A. Holden, Lansing.
Mrs. E. A. Holden, Lansing.
Perry G. Holden, Benzonia.
F. G. Hart, Bay City.
Jessie M. Holt, Lansing.
Mrs. T. B. Hartley, Bessemer.
F. R. Hathaway, Flint.
W. R. Hartwell, W. Bay City.
C. B. Hall, Detroit.
F. D. Hayman, Wolverine,
O. W. Hoffman, Roscommon.
B. A. Hinsdale, Ann Arbor.
F. C. Irwin, Bay City.
Etta B. Jones, Dimondale.
Elsie Jarvis, Holland.
Emma Jones, East Tawas.
C. M. Jansky, Au Sable.
Lydia M. Kneiss, Mt. Pleasant.
H. E. Kimball, Bay City.
J. W. Kennedy, Detroit.
Emmeline Kilbourne, Lansing.
Helen King, Lansing.
Nicholas Knooihuizen, Fowlerville.
Myrna Kline, Addison.
P. H. Kelly, Mt Pleasant.
Hamilton King, Olivet.
Frances Lewis, Saginaw, W. S.
W. A. Ludwig, Lowell.
Emma Lott, Lansing.
Albert Lynch, Flushing.
Pearl Langley, Lansing.
G. W. Loomis, St. Joe.
S. B. Laird, Dowagiac.
Mary Lee, Addison.
Allie Leman, Potterville.
M. W. Langman, Climax.
O. E. Latham, Kalamazoo.
L. W. Leisenring, Sturgis.
Jennie Lindberg, Spring Lake.
Ida Lamb, Lansing.
Mrs. Stella Heath Lampman, Hastings.
Theron L. Langford, Jackson.
William Lightbody, Detroit.
Eugene LaRowe, Webberville.
Anna Moss, Mt. Pleasant.
D. E. Morrison, Galesburg.
D. E. McClure, Shelby.
E. O. Marsh, Bay City.
Alice Marsh, Detroit.
Florence Marsh, Detroit.
J. E. Meally, Hastings.
W. J. McKone, Mason.
Helen Millspaugh, Lansing.
W. H. Maybee, Jackson.
Mrs. F. W. Moore, Lansing.
Katharine McNamara, Detroit.
Melinda L. Mills, Midland.
Margaret, McGill, Stanton.
Katharine E. Maxwell, Evart.
A. J. Murray, Coldwater.
Miss C. W. Mingens, Detroit.
Bertha Malone, Lansing.
W. E. Milham, Galien.
J. R. Miller, Big Rapids.

C. M. McClean, Holland.
A. L. McLauchlin, Chicago.
C. W. Mickens, Crystal Falls.
Grace E. Mines, Grand Rapids.
J. J. Marshall, Chesaning.
Harriet Marsh, Detroit.
Chas. McKenny, Olivet.
Sarah E. McComb, Grand Rapids.
E. O. Miller, Mason.
V. G. Mays, Albion.
L. Lura Moon, Benton Harbor.
H. A. Mackeen, Marlette.
M. S. Moss, Maple Rapids.
Florence Meechin, Battle Creek.
Duly McCone, Houghton.
J. T. Northran, Alma.
Ollie Newbrough, Lansing.
C. H. Norton, Plainwell.
C. E. Newkirk, Chicago.
F. P. Normington, Casnovia.
Belle Noble, Grand Rapids.
James Nicholson, St. Charles.
C. H. Naylor, Lexington.
Vic. A. Nesbitt, East Tawas.
Lena Orlop, Casnovia.
J. A. O'Leary, Paw Paw.
F. E. Pencyar, Bangor.
Anna Ponsford, Grand Rapids.
G. W. Peary, Jackson.
C. E. Palmerlee, Lapeer.
C. E. Pray, Olivet.
W. S. Phillips, Vicksburg.
A. B. Perrin, Frankfort.
Jennie M. Parker, Okemos.
Hattie M. Plunkett, Ovid.
E. M. Plunkett, Ovid.
B. A. Platt, Climax.
Mrs. B. A. Platt, Climax.
J. G. Plowman, White Pigeon.
F. E. Parker, Marine City.
G. A. Parker, Marine City.
Daniel Putnam, Ypsilanti.
Dora R. Palmer, Grand Blanc.
Mrs. John W. S. Pierson, Stanton.
W. S. Perry, Ann Arbor.
Bertha Pope, Vermontville.
W. N. Parker, Charlotte.
H. R. Pattengill, Lansing.
Mrs. H. R. Pattengill, Lansing.
O. L. Palmer, Adrian.
Lulu Payne, Saranac.
Louise Pagelson, Grand Haven.
Jennie Philp, Bad Axe.
E. J. Quackenbush, Grand Ledge.
Maud Rhodes, Lansing.
George E. Rogers, Portland.
T. J. Reavey, Caro.
B. E. Richardson, St. Clair.
E. Dorothy Roberts, Holland.
A. E. Ransom, Flushing.
Jessie Robinson, Lansing.
Lillian Reamer, Shelby.
R. D. Remington, Fenton.
N. A. Richards, Greenville.
J. O. Reed, Ann Arbor.
Mrs. Fannie Russell, Coldwater.
Miss H. F. Stout, Lexington.
J. L. St. John, Lexington.
L. E. Sleeper, Ann Arbor.
Ambrose M. Shotwell, Concord.
D. E. Smith, Ypsilanti.
Louise A. Southwick, Shelby.
R. H. Struble, Watervliet.
F. D. Smith, Cedar Springs.
J. W. Simmons, Owosso.
Miss L. A. Sloan, Lansing.
N. A. Stephenson, Fenton.
Minne Sturtevant, Grand Ledge.
Carrie Swartout, Mason.
Mary Shafer, Lansing.
Lillian Schlee, Ann Arbor.
Della W. Spring, Shelby.
Edna Stephens, Big Rapids.
Kittie Smith, Casnovia.
Jennie M. Seely, Ann Arbor.
W. H. Sherzer, Ypsilanti.
Jennie Sherzer, Jacksonville, Ill.
Warren H. Smith, Lansing.
Miss E. Schafer, Hillsdale.
Martha Sherwood, Saginaw, E. S.
W. L. Shuart, Hillsdale.
Theresa Shultes, Ypsilanti.
Miss H. M. Scott, Detroit.
F. C. Stillson, Fremont.
Edith M. Stone, Oshkosh, Wis.
Jessie Shaw, Grand Ledge.
W. V. Sage, Decatur.
Alta Scott, Lansing.
W. G. Sperry, Olivet.
Chas. E. Smith, Litchfield.
Anna Schriver, Ypsilanti.
C. A. Swartout, Flint.
D. E. Spencer, Bad Axe.
J. A. Stewart, Bay City.
W. S. Seed, Cass City.
E. A. Strong, Ypsilanti.
L. L. Tyler, Grand Ledge.
Letitia Thompson, Saranac.
Ella Taber, Grand Ledge.
Mrs. T. Townsend, Grand Rapids.
Bertha Talcott, Lansing.
Mrs. E. A. Thomas, Detroit.
Jennie L. Thomas, Detroit.
B. E. Thomas, Adrian.
Carrie B. Taylor, Flint.
Elizabeth Tunison, Kalamazoo.
E. E. Taylor, Muskegon.
Allie Thompson, Ypsilanti.
Alice Thoma, Three Rivers.
D. A. Teller, Montague.
Mary E. Urch, Grand Rapids.
M. C. Vanmeter, Williamston.
E. M. Vrooman, Wayland.
J. G. Van Winkle, Belding.
J. L. Wagner, Grand Ledge.
S. O. Wood, Holly.
H. G. Warren, Marquette.
F. W. Wheaton, Durand.
Vernon J. Willey, Lansing.
George W. Walker, Adrian.
Belle Waldo, Lansing.
Edna Waldo, Lansing.

R. Woodford, Lansing.
Etta Wilbur, Lansing.
Libbie Welch, Milford.
F. E. Wilcox, Clinton.
A. H. Woods, La Grange.
M. W. Weymar, Coldwater.
Mabel Willison, Decatur.
Hattie Walsh, Grand Ledge.
T. R. Wilcoxson, Lansing.
A. S. Whitney, Saginaw, E. S.
Margaret Wise, Ypsilanti.
Lottie Wheeler, Petersburg.
M. A. Whitney, Ypsilanti.
Minerva Warren, Charlotte.
Mrs. S. O. Wood, Holly.
E. C. Warriner, Saginaw, E. S.
W. W. Weeks, Aurelius.
E. F. Waldo, Birmingham.
E. A. Wilson, Benton Harbor.
W. W. Wedemeyer, Ann Arbor.
William W. Weir, Croswell.
S. E. Whitney, Detroit.

FORTY-FIFTH ANNUAL MEETING

OF

MICHIGAN STATE TEACHERS' ASSOCIATION.

WEDNESDAY, P. M.

REPRESENTATIVE HALL,
Lansing, Mich., December 26, 1895.

Once again has the rolling year brought together representatives from Michigan's colleges and schools—secondary, primary, and rural; once again have the Capitol halls been filled with teachers gathered from all parts of the State to discuss the more important questions of the hour, and to foster the fraternal feeling that welds together in one common aim all the laborers in the field of educational progress.

The opening session began at two o'clock with an unusually large number convened for the first day. The meeting was called to order by President E. C. Thompson with the following officers each in their respective places: corresponding secretary, Chas. McKenny; railroad secretary, J. W. Simmons; treasurer, G. R. Catton.

A piano solo by Miss Mamie Hulburd of Lansing, was followed by a reading of the 19th Psalm by Rev. W. H. Osborne, and the rendition of a song by one of the primary classes of the Lansing public schools. The president expressed his appreciation of the large number assembled for the first session, and departed from the usual custom of deferring the address until evening, by at once presenting the following:

PRESIDENT'S ADDRESS.

EDWIN C. THOMPSON, SAGINAW, W. S.

In looking over my "Evening Journal" the other day I found the following suggestive incident:—

The Crimean war was over and the victorious troops after long delay and much mismanagement, had returned to their homes. The officers had gathered about a banquet table spread by friends in London. The conversation naturally turned upon the war; its trials, its successes, its

heroes and their heroic deeds. Lord Stratford suggested that it would be interesting to discover who, in the opinion of such a company, was the person whose war-time career would be longest remembered in English history. As discussion would be out of taste in the presence of the generals themselves or their friends, it was decided that, without offense, each officer might write the name of his choice upon a slip of paper and hand it to Lord Stratford, who would announce the result. This was done; and when the little papers were unfolded it was found that the unanimous vote had been given, not to some brave general nor to a hero of many battles, but rather to the gentle, self-sacrificing, heroic Florence Nightingale. Nearly a half century has rolled by since that noted dinner party; and still wherever and whenever her name is spoken, the memory of her sweet ministerings to distressed and dying rises like fragrant, lasting incense, completely hiding the incidents of the war, but wreathing her in clouds of glory.

We have gathered here, the Forty-Fifth Annual Conference of the teachers of the State of Michigan, to take each other by the hand in cordial greeting and to discuss some of the questions which most clearly touch our educational life. The executive committee has endeavored to select those topics which are foremost in the thoughts of all wideawake teachers; and in their efforts, it seems to me, they have succeeded admirably. The subject of "Child Study" and the vital questions which cluster around it, with a prospect of a "feast of gold" from its distinguished American advocate, Dr. G. Stanley Hall, will quicken our activities and inspire us to brighter thought and better work. The consideration of the "Course of Study" prepared and presented by thoughtful, scholarly men, and which it is proposed, when matured, to place in our hands for the better training of our youth, will attract and interest us.

The various section programs, prepared by specialists, will afford opportunities for those interested in special lines. "The Enforcement of the New Truancy Law," presented and discussed by those deeply interested in it, will throw light in dark places. "Professional Ethics" will teach us better relations to each other, and "School Management" better relations to our pupils. These topics touch very closely our professional life, and lead out to new thought in rich fields. May we not hope that the words of these discussions may be so well chosen and the thoughts so crystallized, that we shall be able to take to our work new wisdom and greater inspiration.

We live in stirring times, fellow teachers. Old theories are being weighed and measured; the air is full of new things. Child study, concentration, correlation, individualism, nature study, the humanitas—history and literature, Herbartian, and Hegelean philosophers; i. e. the relation of primary to secondary, and high school to University, and the adaptation of all to American life,—upon the solution of problems connected with these questions, depends the future efficiency of our Schools.

Revolutions are about to take place in matter and method, and these will involve many minor details of school room equipment and life. Adjustable seats, already in the field, will soon be universally used to the lasting physical good of our pupils. School slates with their untidiness and the unpedagogical practices connected with them, have already disappeared from our best schools. The blackboard with its mourning effect, its unhealthful dust, and methods which touch life nowhere except in the school room, must go too. In its place will be the typewriter, the

pen and pencil—things the child will use in life. The world will learn, too, that costly palaces in which thousands of children are gathered in closely crowded, ill-ventilated school rooms, are not the most desirable for character building, but that numerous cheap, but well ventilated buildings, with large rooms and pure air will serve the purpose better. The time is not far distant when masterpieces of art will adorn the walls of these school rooms. Recesses with all their contaminating influences have, I trust, gone never to return. The rod and brute force in governing children must go; love must rule; better ways must take possession. Teachers must do better work and be better paid. Many things are under condemnation. Teachers and people are not satisfied with existing conditions; the air is full of doubts and discussions. Experimental educational work shops are already in the field; others will follow. New theories are being advanced and tried, many of which will be found practical and successful; old ways and theories will be discarded. The conflict is upon us, we are in the midst of it, the result of it all—what?

It may be well for us to pause in the midst of all this activity and ask, what, in the opinion of a company like this, is to live longest? What is the *enduring* thing? What shall be *eternal*? Ruskin said, "Great Nations write their autobiographies in three manuscripts,—the book of their deeds, the book of their words, and the book of their art."

As we learn wisdom from the past, you will pardon me if I ask your attention for a moment to lessons gathered in the old time way. As I open the "book of deeds" and look down the line upon the world's great movements, I think I see, running like a thread of gold through all and binding all, one great thought—the struggle for freedom. When Callimachus cast his deciding vote for resistance to tyranny, in that little council assembled upon the mountain side above the plain of Marathon, he set in motion forces which went ringing down the ages. That vote revolutionized the world. As a result the Greeks made the first stand for freedom, and against all odds freedom triumphed. The mighty Persian hosts were driven back through the sea to their home in the East. Freedom witnessed another triumph at Syracuse, when the Athenians grown arrogant and oppressive, sought to lay hands upon their weaker neighbor. Arbela recalls another victory. Rome in her struggle for liberty was successful; but Rome, tyrannous and proud, fell. Onward with ever unfolding power, the great principle marched through Chalons, Tours, Hastings, Orleans, Blenheim, Pultowa, Saratoga, Valmy, Waterloo, and our Civil War. What tremendous leaps the principle has at times made. Through Cortez, Columbus, Copernicus, and Martin Luther! And in its onward movement it took on, not only fuller political life, but larger life in all the humanities—unselfishness, charitableness, kindness, fuller love, and fuller religious liberty. The Greeks fought, that each individual might be free; the Romans, that Rome as a nation, might be free. America in her Civil War fought, not that the individual might be free, not that America as a nation might be free, but that a poor black man, whose father was a slave and whose grandfather was stolen from his home in Africa, might be free. As a result of this unselfish war, four million dusky faces were lifted heavenward and thanked God for freedom. From selfishness to selflessness the cause has marched.

If this be true in the great movements of the world's history, it is still more true and more clearly discernible in literature, the "book of words" which voices the inner thought and life of the individual. Here, too, is

a record of struggle. The hero and the wanderer, and the hero and the conquerer, but symbolize the Soul in its search for lost happiness or its struggle with the Dragon of sin and self. The story of Troy, as told in the Iliad, symbolizes the strife of right against wrong and, as completed in the Odyssey, gives again the thought that no matter what the great movement in which one may engage, he will be held personally responsible for his deeds, and will expiate his sins by weary wandering and soul struggle before he reaches home and peace. Kalevala brings out, in the struggle between the Finns and Lapps, another contest between the powers of light and darkness. In the Niebelungen Lied and the Arthurian Legends, we have the same underlying truth. The Song of Virgil is a song of wandering for home and final happiness. In all myth and great works of early literature, one who will, may easily read between the lines the Christ idea. Illuminated by this Light from the Cross, picturing sin and its punishment, and righteousness and its peace, in vivid colors, the Divine Comedy of Dante tells us the same great truth. Paradise Lost has to be Regained, so sings Milton from his darkness. The Faery Queene's Red Cross Knight struggles and destroys the hideous dragon before he is united to Una. Pippa sings her sweet songs into the very souls of those who listen and sets in motion deadly conflict against sin and self, and God wins. Faust, after untold suffering and temptation, finally comes to himself and in "*Nun bin ich gluecklich*" words his final triumph. Sir Launfal can have no peace until he seeks and finds the Holy Grail, and the Peri after diligent search finds and presents the "tear of repentance" and is admitted to Paradise.

We open for a moment the "book of art" and ask from what source has it derived its greatest inspiration. The masterpiece of the Louvre in Paris is Murillo's "Immaculate Conception." The "Madonna della Sedia" by Raphael in the Pitti Palace. Florence, is the jewel of the collection. In the Vatican, the "Sistine Chapel," on the ceiling and walls of which Michel Angelo has painted the story of the Soul, stands first. Tintoretto's "Paradiso" is the masterpiece of the Doge's Palace, Venice. De Vinci's "Last Supper" in the old monastery at Milan is known the world over. The "Descent from the Cross" in the Antwerp gallery, and the "Sistine Madonna" of Dresden, are well known. While in our own galleries we bow reverently before copies of "Christ before Pilot" and "The Angelus," in which the soul is in the attitude of prayer. In soulpture we find the same source of inspiration. Hegel hints that the Sphinx is the first representation in stone of the soul rising from the brute creation. Crowning the famous column standing on the Piazetta at Venice, is St. Theodore with foot upon the Egyptian Crocodile—man above the brute, spirit triumphant. Michel Angelo's "Moses" in S Pietro in Vincoli and "David" of Florence, tell where the great artist drew his inspiration. It is always a king of beast or man that is cut in marble. So in architecture, the skill of the world clusters about its temples; in music, too, the principle holds good. It is the religious idea that has moved the world of art —the truest book of all.

In all records of great human events, and in the world's truest and deepest thought as recorded in literature as well as in the world of art. the one enduring theme seems to be the adjustment of the soul to God. It is the divine spirit of selflessness with its fruitage of love and self-sacrifice, which rendered the name of Florence Nightingale immortal; and that teaching which forgets to deal with the religious must be a failure.

We want, not simply learned men and women; we want honest, true, God like men and women. Then in all our professional studies, leading to a more wise adjustment of educational affairs, and in our daily work with those placed in our care for training, let us not forget that—

"The grandest work in which man and, so far as we are able to determine, God himself, can engage, is the building of Christian character."

After the conclusion of his address, President Thompson spoke of the desire expressed by many that the papers should be limited to twenty minutes and the discussions to ten; his announcement that the time limit would be strictly adhered to was greeted with applause, and the first paper on the program then announced.

CHILD STUDY.

A. S. WHITNEY, SAGINAW, E. S.

In conformity with the instructions of your executive committee, this paper has been prepared as a forerunner of the distinguished lecture held in store for us this evening by President G. Stanley Hall of Clark University. With this end, then, ever in view, it shall be its purpose to give a brief historical glimpse of child study, its various methods of investigation, and a few of the practical results thus far obtained.

Child study, aside from the general benign influences of Rousseau, Pestalozzi, and Froebel, may be said to have received its first distinctive impulse in Germany in 1869. During that year the Berlin Pedagogical Verein issued a circular to the teachers of that city inviting them to inventory the ideas of the children on entering school, so far as influenced by their environment. To this end, seventy-five questions, largely of local origin, were asked and answered. The teachers, however, manifested but little interest in the movement, and in consequence the results were incomplete, inaccurate, and productive of little educational value, other than that of suggestion. This crude beginning was supplemented by the studies of Darwin, Lazarus, Taine, and finally, by the invaluable publications of Preyer in 1879 and 80, when the movement in this country began.

The first purely scientific study of childhood in this country was that made by Prof. Henry P. Bowditch of Boston in 1879, and was based upon the physical measurements of thousands of children between the ages of five and eighteen years. This was followed by similar investigations by Dr. Porter of St. Louis, Missouri, Dr. Boas of Clark University, Dr. Hartwell of Boston, Dr. Bryan of Indiana University, and several others, all of whom have made contributions of great value. But indispensable to the perfect understanding of child nature as these fundamental investigations surely are, they have as yet been completely overshadowed by the study of children's minds under the masterly leadership of Dr. G. Stanley Hall, the father and chief promoter of the present child study movement.

Previous to 1880, when Dr. Hall began his investigations, there was no accurate scientific data showing the contents of children's minds. During that year Dr. Hall undertook to ascertain what the average Boston child might safely be supposed to know upon entering school. For this purpose one hundred and twenty-three questions, based largely upon the

childs relation to nature and society, were carefully selected. The children were taken aside in groups of three, and carefully questioned by four expert kindergartners acting under the immediate direction of Dr. Hall. In every instance the utmost precaution and skill were exercised to secure the truth, all doubtful replies being positively rejected. The results were compiled and published in a little pamphlet, entitled "Contents of Children's Minds on Entering School." This little pamphlet has had a wide circulation in America, and has been translated into several foreign languages.

In addition, Dr. Hall has contributed many articles on various phases of Child Study, has founded the American Journal of Psychology and the Pedagogical Seminary, has lectured in all parts of the country, and finally, during the past year, has formulated, printed, and distributed to all inquirers a series of fifteen syllabi on the following subjects: I. Anger; II. Dolls; III. Crying and Laughing; IV. Toys and Playthings; V. Folk-lore Among Children; VI. Early forms of Vocal Expression; VII. The Early Sense of Self; VIII. Fears in Childhood and Youth; IX. Some Common Traits and Habits; X. Some Common Automatisms, Nerve Signs, etc.; XI. Feeling for Objects of Inanimate Nature; XII. Feelings for Objects of Animate Nature; XIII. Children's Appetites and Foods; XIV. Affections and its Opposite States in Children; XV. Moral and Religious Experiences. Over twenty thousand returns have been made to these syllabi and are now being worked up for publication.

In 1885, Mr. E. H. Russell, Principal of the Massachusetts State Normal School at Worcester, began the systematic study of children by a method somewhat different from that previously adopted. Instead of following a definitely outlined syllabus and searching for some particular mental fact or condition, the observer simply possesses a record of half sheets of note paper, containing heading for name and age of observer, and name, or initials, age, sex, and nationality of the child observed, and the length of time between making the observation and recording it; and he carefully notes whatever crosses his field of vision. The observer is advised to conceal his purpose, to keep his note book out of sight, and to watch the spontaneous activities of the children, endeavoring in every way to guard against reading into their minds the facts and phenomena desired. By this method Mr. Russell has collected 35,000 reports, and is preparing to publish his conclusions therefrom in a book entitled "Child Observations," which will undoubtedly prove of great value to all students of children. Mr. Russell's method has also been adopted by many teachers as an aid to the teaching of psychology, with most flattering reports of success.

Sarah E. Wiltse, a former Michigan girl, and one of the four Boston kindergartners selected by Dr. Hall to inventory the contents of children's minds, has performed much valuable service for child study by means of original investigations and contributions of various books and articles which have had a large circulation all over the country, among which may be mentioned "Sound Blindness," "Adolescence," "Place of the Story in Educational and Other Essays," and "A Preliminary Sketch of Child Study in America," to which this sketch is largely indebted.

In 1890 child study received a strong impulse in the establishment of Clark University and the election of Dr. Hall, the universally acknowledged head of the movement, as president. Acting under his inspiration and guidance, much of the best study and literature has emanated from

the professors and students, the following comprising some of the most valuable: Dr. W. H. Burnham,—"The Study of Adolescence," "A Scheme of Classification for Child Study," "Individual Differences in the Imaginations of Children;" T. K. Bolton,—"Growth of Memory in School Children," "Rhythm;" F. Tracey,—"The Language of Childhood;" A. H. Yoder,—"Studies of the Childhood of Great Men;" G. E. Johnson,—"A Study of the Educational value of One Thousand classified Plays and Games;" Oscar Chrisman,—"The Hearing of Children," "Children's Secret Language;" Dr. W. H. Bryan,—"The Development of Motor Ability;" Dr. A. F. Chamberlain,—"The Child in Primitive Culture;" and J. A. Hancock,—"Preliminary Study of Motor Ability and the Relation of Strength to Flexibility in the Hand."

From Massachusetts, the pioneer state, a strong child study sentiment bent its course to the westward, leaped the Rocky Mountains, and buried its feet deep down into the rich and enriching soil of California, due largely to the untiring efforts of Miss Millicent W. Shinn, formerly editor of the Overland Monthly, and Prof. Earl Barnes of Leland Stanford University. The former adopting and improving upon the general methods of Preyer, has made the most complete records of an individual child, her niece, yet published. She has also contributed articles on "The Visible World of a Little Child," "Early Home Environments," etc., which are full of interest and profit. The latter, following the methods of Dr. Hall, has performed a most marvelous work. He has not only made special studies and contributed articles upon "Children's Drawings," "Children's Rights as Seen by Themselves," "Children's Plays," "Childish Superstitions," "Class Punishments," "Comparison and Inference," "Punishment for Weak Time Sense," "Punishment in School or at Home," "Children's Sense of Time and their Financial Sense," but he has lectured in nearly every city and town in the State, arousing and instructing the teachers, forming child study circles, and distributing syllabi.

In Illinois, a most complete state organization for the advancement of child study has been formed with Col. Parker as president, and Dr. C. C. Van Liew as secretary. The mere mention of these names, together with those other members of the executive committee—Bright, Cook, Everest, Krohn, McMurray, Dewey, Donaldson, and Bryan, names eminent in the educational work of today—is a sufficient guarantee that the future is full of hope and promise. The society is now in a very prosperous condition, numbering over 600 members. It has published "Handbook and Transactions," a series of pamphlets rich in thought and suggestion. It has also published many syllabi and distributed them to workers in all parts of the state. The good cause has also been greatly furthered by the establishment of "The Child Study Monthly," by Dr. William Krohn, the able and enthusiastic chairman of the executive committee. The entire organization, both in letter and spirit, may well form a model for all other states to copy. In addition, Elizabeth Harrison, head of the Chicago Kindergarten college, has contributed her "Study of Child Nature" and her "Study of Toys," two very valuable publications.

In Illinois, New York, Iowa, and now in Michigan, the movement has been officially recognized by the department of education, while in a large number of other states round tables, circles, and associations of various other kinds have been formed, and a deep and growing interest everywhere visibly aroused. To give even a brief description of the work of

these states would extend this article so far beyond its proper limits that simply the mere mentioning of a few of the most valuable productions, together with the names of the men and women who contributed them, will be attempted. They are as follows: Miss Schallenberger, "Study of Children's Rights as Seen by Themselves;" Mrs. Adler, "Hints for the Scientific Observation and Study of Children;" Dr. Schimer, "Mental Traits as Revealed by Physical Signs;" A. T. Smith, "Mind Evolutions;" F. W. Osborn, "Ethical Contents of Children's Minds;" Prof. C. A. Thurber, Colgate University, "Hints on Child Study;" E. H. Kirkpatrick, University of Iowa, "Memory," etc., etc.

Child study as such has also secured a strong foothold in foreign lands. In Canada a vigorous association has been organized, a course of study formulated, and a healthful spirit of investigation widely disseminated, the initiative being directly traced to the influence of Dr. Hall's lectures before the Ontario Educational Association held at Toronto last year. In England the British Association of Child Study, having three distinct and separate branches and meeting in different parts of the realm, has been formed with James Sully, the eminent psychologist, as one of the leaders. This association is said to have received its first quickening impulse from the English and Scotch teachers attendant upon the Child Study Section of the International Educational Congress held at Chicago during the World's Fair. In Germany and France much painstaking experimentation has been carried on, and many very valuable scientific results produced, though the work has never in any sense assumed the form of a "movement," as in the countries above stipulated. Thus it can be seen that in an almost incredibly short space of time, child study has attracted the widest attention and aroused the most thoughtful consideration of the brightest minds of today, has produced a literature surprisingly rich in quantity, thought, and suggestion, and, at the same time, has laid broad and deep the foundations of a new science that will eventually overturn the man made machine-methods and set up a new pedagogy that shall have for its center that which is nearest and dearest to us all, the child.

As to method of child study, at least three distinct lines may be pursued, as follows: the laboratory, or experimental; the syllabi; and the Russell, or Worcester Normal School method. By the laboratory method all of the child's physical and intellectual powers are measured with almost unvarying accuracy, the most ingenious and delicately wrought apparatus being devised for this purpose. This method has proved of great value in the establishment of some of the most important fundamental laws of childhood; yet from its very nature, it can never be utilized except by the expert psychologist and in a thoroughly equipped laboratory, such as exists in nearly all of the universities of Germany, and in Clark, Harvard, Yale, Columbia, Pennsylvania, Cornell, and many others in this country. In consequence, it needs no further consideration at this time.

By the syllabi method, a special topic is selected, a carefully outlined plan of study formulated and placed in the hands of mothers and teachers for guidance, and the data collected therefrom sent to an expert for compilation and inference. This method can be advantageously employed by any one at all well versed in a knowledge of childhood, and in two ways; either by direct questions and answers, as in the case of the four expert Boston kindergartners, or by means of the story. In the former the

utmost care needs to be exercised to avoid reading into the minds of the children that for which the observer is seeking, while the following will best illustrate the latter:

"Once a mother gave a child for a birthday present—the child was just six years old—a beautiful box of paints. In the afternoon, while the mother was busy in another room, the child painted all the parlor chairs so as to make them look nice, and then called out, "O, Mamma, come and see how pretty I have made the parlor." The paint could not be washed off and so the chairs were spoiled. What would you have said or done had you been the child's mother?"

"One day when I was about seven years old I went to a neighbor's to play, and my mother told me to be back by six o'clock. I was enjoying myself so much that I did not know how fast the time was passing, until I noticed it was getting dark. Then I ran home as fast as I could go, but it was half past six when I got there and the family had been to supper. My mother scolded me for being late. Was it right for her to scold me or not, and why?"

"One day while the teacher was busy she heard some one laugh. She asked a girl who laughed; the girl would not tell, though she knew. Did she do right or wrong in not telling, and why?"

"Johnny's mother was going away, so she told him to look after his sister Mary. After the mother was gone, Mary began to scratch the table; Johnny told her to stop, but she went on scratching it. Should Johnny have punished her, or should he have waited and told his mother?"

These stories are given as simple composition exercises, the teachers never indicating by look, word, or deed, their true purpose. To do so would destroy spontaneity and render the results valueless. For further discussion, see Professor Earl Barnes' "Discipline in the School and Family," in the last "Transactions of the Illinois Society for Child Study," from which these stories are taken.

Considered as a whole the syllabi method is definite, direct, and responsive, the method most universally employed at the present time, and the method through which the highest results have thus far been secured.

As to the Russell plan, the general characteristic features have been so fully discussed in the foregoing as to necessitate little further elucidation other than the mere recital of the methods of procedure, together with some of its attendant illustrations. It can best be given in the authors own words as follows:

"We begin, with new comers, by calling their attention to the fact that children are in full activity all about them, and to the further fact that their own childhood stretches back continuously to infantile unconsciousness, and that parts of it may, by practice in recollection, be brought distinctly into view and studied, as it were, objectively. These two considerations, though obvious and familiar to all, need to be brought home to the mind with considerable fresh illustration, amplification, and emphasis. Then, perhaps, the students are asked to recall some small incident of their own early life, or some act or remark of any child they have recently seen, and state with precision and without explanation or comment the fact so recalled or observed. This little lesson shows them that what is wanted is not only possible, but easy. As a third step, they may be requested to notice what the next child they happen to meet is saying or doing, and to make as soon as practicable afterwards, a concise

and accurate written record of this. The three steps just enumerated really sum up and epitomize the whole process."

Again, "the ordinary every day life of the children of any community offers thousands upon thousands of significant facts, open to everybody's notice, and ripe enough to be plucked and used as data for valuable generalization, but not yet disengaged and made available by explicit observations and record. It is the gathering of these, in great numbers, that constitutes the simple task of our students. They are to report every thing they can get hold of that goes to make up the manifold activities of children's lives; and they are to reject nothing because it seems remote and trivial, for they can never tell at the moment what significance may lurk unperceived in the most ordinary or the most extraordinary word or act or gesture."

And again, "No one can peruse the thousands of records that have been handed in during the last five or six years without being struck with the wide areas of observation which these young people in the aggregate have traversed. As one reads score after score of these reports, many of which seem as vivid and striking as instantaneous photographs, the imagination easily pictures this band of alert and open-minded students, watching with unwearied patience or following with noiseless step the fascinating little creatures of their quest through many intricate and winding paths: at home, in the street, at school, at church; alone, with playmates, with strangers, with pets; in moods of fear, affection, anger, jealousy, vanity, frankness, deceit; in all stages of knowledge, error, superstition, and ignorance; in every display of ability and ingenuity, whether in devising or executing; in all phases of enjoyment, passive and active, especially in games and plays; in every indication of special talents or strong bias or of conscience; in every sad manifestation of deficiency, maladjustment, or depravity; in the mysterious rhythms and modulations of thought and fancy and feeling—from all these highways and byways of children, stores of facts have been gathered and brought home.

The following reports may be taken as samples:

(Child observed, Alfred, aged about 6 years.)

A was dining at our home tonight. During dinner I told my father about the horse-chestnut tree one of the teachers (at the normal school) saw, with red blossoms. My father said he never heard of a red blossom on a horse-chestnut tree before, and wanted to know what street it was on, when A said, "My teacher told us today of an apple tree and the blossoms on it were blue."

I. "Did your teacher tell you where it could be seen?"

A. "Yes, but its down on Winter street in Boston, so you can't see it." My father said it would be worth while to go down to Boston to see such a tree, and he thought he could see it when he went on Wednesday, as he knew what street it was on.

A did not say anything for quite a while, and the he suddenly said, "I forgot to tell you that a storm knocked all the blossoms off that apple tree, so I don't think you can see it."

(Child, four years old.)

E's mother is afraid of cats, and hates to touch them. E did something, and his mother said she was going to whip him for it. When she said this, E was standing near the door and he went out. In a few minutes he came in with the cat in his hands. He got very near to his mother, and then said, "Now, mamma, if you lick me, the cat will bit you all

up." Mother—"E, let the cat go out." E—"Will you lick me? If you do, I won't let the cat go, and he'll scratch you, if I tell him to." Mother—"Well, I won't lick you, if you let it go." E let the cat go, and laughed for a long time; and ever since then, if she says anything to him, he will say, "Mamma, I'll get the cat."

(About seven years.)

I used to live opposite the schoolhouse when I was in the second grade. At recess I very often asked if I could go home for an apple. One day the teacher refused to grant my request. She said, "If you keep on you'll be a barrel of apples." I thought she meant what she said, and I was so frightened I stopped eating apples for a long time. I longed to eat an apple after this, and I used to cut out all the seeds and then eat the rest. I did this because I said, "If I don't eat the seeds, there won't be any apples."

Bessie was digging in the snow, and her cloak was unbuttoned and flying open. I said, "Why, Bessie, why don't you button up your cloak?" She answered, "Don't you see I'se working like a man, and mans has their coats unbuttoned?"

(Child observed, Henry, aged 7 years.)

Henry told me confidentially that Alice — was "awful smart" and the "best reader in school." Winnie (10 years) overheard this and asked him if he liked Alice better than any other girl. He grew red, and was so confused that he did not answer.

Application of sayings:

(Four-years old) R's aunt said: "You are so restless, R, I can't hold you any longer." R—"Cast your burden on the Lord, Aunty K., and he will sustain you."

(Four years.) D had for a "Golden Text" Acts iii: 6. His little sister W was just learning to walk, and one day her mother told her to come to her. D went to his sister, and, stooping down to help her up, said, "W, in the name of Jesus Christ of Nazareth, rise up and walk."

These reports are classified under various rubrics, according to the facts or phenomena represented, and in such a manner as to be of ready reference. They are then utilized as a basis for pyschological study in place of long drawn out text books, replete with abstract definitions and musty, meaningless statements.

Taken as a whole, the Russell method, owing to its extreme simplicity, universal applicability, and immediate reactive effect upon the observer, is, in my judgment, worthy of the highest commendation. It lacks, however, the directness of the syllabi method, and is much slower of scientific productivity; yet, at the same time, it is admirably adapted as preparation for such system, or to be used in conjunction with it.

Let me now call your attention briefly to a few very practical features of child study that have come directly under my own observation, leaving its fuller discussion to those who are to follow.

During the last school year one of our enterprising jewelers provided each one of our schoolrooms with oculist "test cards," and personally instructed each one of our teachers how to make the proper ocular examinations. The results in many cases were simply astounding, teachers even of experience little realizing to what extent defective sight was prevalent among their pupils. In consequence many pupils have had a new world opened up to them through properly fitted glasses, while others

have had their powers of acquisition greatly enhanced by being removed to more advantageous positions.

A similar examination for defective hearing has been made during the past fall with even more strikingly surprising results. The remedy for this misfortune is sought in the proper seating of the pupils as in defective vision, and in the more careful articulation of the teacher.

In our central school we have an "unclassified" room for all pupils of the grammar grades who, for various reasons, do not seem adaptable to the work of the regular classes. In the examinations above specified, every one of the pupils there enrolled—23— were found to be suffering from defective vision, defective hearing, or both. What a commentary on a boasted system of education that will render it even possible for any goodly number of children to pass so many years within the schoolrooms branded as "dullards," with every hope and ambition throttled, with their very life giving spirit crushed.

Another interesting result of these tests is the suggestion from some of our teachers, that there is a close relation existing between poor sight and hearing, and constitutionally bad readers and spellers, particularly in those cases where the defect is congenital. To establish the truth or falsity of this, and in what degree, constitutes our special work for January.

During the past fall also, we have directed our work in the primary grades in accordance with the recently established laws governing the proper functions of the fundamental and accessory muscles. While it is yet too early to specify definitely as to results, we are heartily in accord as to the wisdom of the changes made.

Finally, and perhaps chiefest of all, is the practical effect of child study upon the individual teacher. No teacher can examine the vision, test the hearing, study the temperament, and record the various other physical and mental phases of a child's nature without learning to know him better—his likes and dislikes, hopes and fears, joys and sorrows, successes and failures—and thereby coming into more tender and loving sympathy with him, into more perfect teaching relation with him. It also quickens within the teacher a more tender conscience, a more exalted ambition, and a keener sense of his powers, limitations, opportunities, and responsibilities; and best of all, it inspires him with a deep and hallowed reverence for the little lives entrusted to his care, and engenders an insatiable thirst to implant within every growing breast the sacred ideals of highest manhood and noblest womanhood.

DISCUSSION.

Opened by HARRIET MARSH of Detroit:

Education means a fitting for life. In other words, he is best educated who is best able to perform his part in what one of our own educationalists calls the five institutions of our civilization; namely, the home, the neighborhood, the political institutions, society, and the church. If this be true, it necessarily follows that the public school, which is established by the State for the purpose of educating, must conform to this view. A natural and inevitable expansion of orbit is the result; the teacher must know and do many things undreamed of under former conditions; for instance, she can not prepare the child for adult life unless she has some knowledge of his present environment; and this calls for direct and intimate relationships with the parents, or, more properly speaking, with the mother. Now the mother needs us fully as much as we need her, and it may not be too much to say that one of the most important steps soon

to be taken in public school work will be the recognition of this great necessity. How, I ask, can two people train a young child properly, when neither knows the other's aims, methods, or ideas? Is it not a most natural supposition that each would work more intelligently if she were in friendly, sympathetic relations with the other?

It was with some such thoughts as these that a little invitation struck off the mimeograph, was issued to the parents of the Hancock school, Detroit, in October, 1894, stating that, upon a certain Thursday afternoon, a mothers' meeting would be held at the close of the school for the purpose of discussing the subject of "Dolls."

The Thursday came, so did twenty-five mothers, somewhat curious as to the object of such a meeting and such a topic; but curiosity gave place to interest, as they learned the effect of these factors in the child's education; their influence upon its imagination, development of domestic qualities, etc., etc., were facts hitherto unsuspected, and the second meeting was attended by a well prepared and interested group. Matters of school government were also discussed, as tardiness, truancy, injury to other people's property, the rights of others, and the unnecessary exposure to damp and cold suffered by some of the children. The fact that the Hancock is the only school in the city which has escaped a single case of diphtheria or any kindred disease, this season, may be due, in part, to a plain discussion at some of these meetings of the simpler laws of hygiene. Be this as it may, a pleasanter and more sisterly relation has grown up between parent and teacher, since the organization of this club; difficulties are now settled with a sympathetic (and in many instances) loving recognition of what we are trying to do for them; children are more carefully clad, less recklessly exposed; cigarets are disappearing, and a host of other matters are improving, not because the mothers know more, but simply because their attention has been called to a few things, which, in the hurry and bustle of domestic life, had not occurred to them.

At the beginning of the year, we commenced a study of foods, and are trying to determine the relationship of a healthy body to a healthy mind. The meetings are fraught with interest and our attendance varies from forty to sixty-five persons. Mothers' meetings are particularly recommended in those districts where the teacher finds difficulty in governing, where parents are unreasonable and pupils intractable, where political or religious factions exist, or where, for any reason whatsoever, the teacher's existence is not ideal.

SUPT. C. O. HOYT of Lansing:

Fellow teachers—It is not my intention to discuss the paper which has been read, but rather it has fallen to my lot to present a phase of the subject that has not yet been touched upon. Realizing the necessity of that which is of a practical nature for teachers, and realizing still further the danger hinted in the last discussion, that we may make of child study a fad, a plan was conceived whereby child study might not only be of use to the teacher herself, but to the child at the same time. From the superintendent's standpoint the work has not been so much child study as teacher study; and from that, teachers having caught the inspiration, have studied their children individually. With this in view, several years ago I began to work along the line of study of temperament in children. Now, by temperament we do not wish to be understood as conforming our work in any way to phrenology or physiognomy. Accordingly, a short syllabus was prepared, and the object of this syllabus was to enable the teacher to begin the work in child study by getting at the individual child.

First, It was suggested that the teacher should study herself, that she should first know how she is constituted; then, after knowing, she may be able the determine some points about the child. I have known several teachers in the past few years who attributed a defect to a child when the defect rested with themselves. For instance, a teacher was continually nagging the children because they did not speak loud enough, and the poor creature did not know that she had a very serious defect in hearing. The teacher should first understand herself.

Second, I have asked my teachers to select some child, either a pupil in the school or in the home, observe this child closely, and record facts. With this in view a sheet was prepared upon which the observations might be recorded. This record of observation may then be classified or may be used in any way that we wish. The object of this and the point that has beeen gained, has been not so much the scientific value that has come from it, nor that we have discovered any new or startling truths, nor that we have gathered scientific data; but it has inspired teachers to work with pupils and to handle them in a way that they have never before done. I have used the terms nervous, sanguine, bilious, and lymphatic, in this scheme here presented, merely for classification:

GUIDE TO CHILD STUDY.

The following topics, together with the accompanying blank for recording observations, are intended to assist teachers in beginning to work on the study of temperament as well as of some general mental characteristics:

1. Study yourself, determine your own temperament. In order to do this you may need to ask some friend to assist you in telling you honestly things you are unable to determine for yourself.
2. Select some child, either a pupil in your school or one in your home. Observe closely and record facts.
3. After having made your observations please forward them to the writer who desires to collect facts along these particular lines.

PHYSICAL CHARACTERISTICS.

Name, age, weight, and height. Health, good or poor. If in school, what grade. Nationality of father; of mother.
Test vision and hearing; record any defects that may be found.

I. Color:—

1. HAIR—Light brown or white, red or auburn, black or flaxen, fine or strong and abundant.
2. EYES—Blue, light blue, gray, black or brown, bright or lusterless. Does the white of the eye seem in too great proportion? Notice if the eye is prominent, or if set well back into the head.
3. SKIN—Pale and clear, fair with reddish tinge, dark, dry or sallow, colorless. Record anything peculiar.

II. Form:—

1. BODY—Slim, delicate, tall, solid and thickset, hard muscles or soft flesh. Is there anything abnormal about the size of the body? Notice any deformity.
2. HEAD AND FACE—High, broad and prominent forehead, rounded or square face; jaw heavy, massive or angular; neck long or short. Is the nose narrow or outspread and prominent? Is the head high and prominent at the top or at the back? Lips thick or thin? Countenance bright, animated, or is there a tendency to scowl? Expressionless or languid expression. Notice any peculiarities of the head or face, such as birth marks, etc.

III. Motions:—

Quick, slow, decisive, steady, or spasmodic. Can the child sit still? Notice motions when child is at work, unconscious to surroundings; when self-conscious and when excited.

IV. Speech:—

Note such defects as stammering; rapid and undecided; slow, firm, decided. Is there a difference in speech when child is excited. Is the voice loud and harsh or soft and pleasant? Note any peculiarities.

MENTAL CHARACTERISTICS.

1. Impulsive, animated, hasty conclusions, buoyant and always cheerful, serious and thoughtful. Slow and thoughtful conclusions.
2. Kind of pursuits preferred—intellectual, muscular or business, or all.
3. Excitable, easily provoked, imaginative, neat, sensitive, particular, fastidious, emotional, passionate, jealous, revengeful, or unscrupulous. Does he forgive but never forget? Is he easily reconciled when provoked?
4. What kind of stimulus, if any, is needed to keep him at work? Is there an endurance under work?
5. The kind of study, play, or work most agreeable.
6. Melancholy and given to day dreaming, irritable, fond of gayety, given to exaggeration, generous, self-reliant, cruel, practical, or patient.

Scheme for the Study of Temperament.

		Nervous.	Sanguine.	Bilious.	Lymphatic.
Color	Hair	Light brown or white—fine	Red or auburn	Black, strong, and abundant	Flaxen, light brown.
	Eyes	Blue or light gray—bright	Blue	Black and keen	Brown, gray, lusterless.
	Skin	Pale, clear	Fair—reddish tinge	Dark, dry, sallow	Colorless.
Form	Body	Slim, delicate, often tall	Full chest, limbs rounded, thick set	Solid, thick set	Soft flesh, often corpulent.
	Face	High and broad forehead, narrow chin	Rounded, cheeks flushed	Square	Rounded, languid expression.
	Neck	Long, slim	Short	Short, often full at the back	Short, very full.
	Nose	Narrow	Outspread	Outspread	Outspread.
	Lips	Thin	Thick	Thin	Thick.
	Head	Large, full in forehead	Round	Rounded, full behind the ears	Large and rounded.
	Motions	Quick	Quick	Decisive	Slow.
	Speech	Rapid, often undecided	Firm, outspoken	Decided, ready and informed	Slow, well informed.
Mental characteristics		1. Impulsive, animated, rapid, hasty conclusions	2. Impulsive, buoyant, and cheerful	3. Serious, thoughtful conclusions	4. Slow, thoughtful conclusions.
		5. Both intellectual and muscular pursuits liked	6. Muscular pursuits preferred	7. Business pursuits preferred; good at all	8. Muscular pursuits avoided.
		9. Excitable, readily provoked, easily reconciled, imaginative, sensitive, particular, fastidious	10. Excitable, easily provoked, easily reconciled, emotional	11. Passionate, jealous, revengeful, unscrupulous	12. Not excitable, forgives but never forgets.
		13. Enduring in work	14. Not enduring in work	15. Enduring in work	16. Enduring in work—a plodder.
		17. Irresolute	18. Ardent, not persistent	19. Eager, earnest, persistent	20. Persistent—not ardent.
		21. Likes poetry, music, nature	22. Likes music, art	23. Likes mathematics	24. No special preference.
		25. May be melancholy, given to dreaming or great irritability	26. Likes gayety, tendency to exaggeration, tears flow easily but soon pass away	27. May be cruel or generous, always is self-reliant	28. May be practical, cheerful, or patient and self-reliant.

DIRECTIONS FOR DETERMINING TEMPERAMANT.

As a child's mental is largely influenced by his physical, it is important that some attention be directed to this study. This may be done in the study of temperament, but in order to do this one must of necessity notice certain mental characteristics determined by outward manifestations. It is a rare thing to find a child of a pure temperament. You will find all grades and qualities, and no two alike. It is only necessary to determine what qualities belong to each child. To do this one must be patient, honest, and observing. Study the child intelligently and you will be surprised at the facility with which, in a little while, you can determine each child's nature. On the above chart begin by determining the points along the line of the physical. Determine the color of hair by underscoring that which represents the present case; next eyes, skin, etc. Take time. After the chart has been marked, indicate the summary as directed in the Characterization. Study yourself by making a personal chart.

A study of these various temperaments has revealed that the vision defects of the nervous pupils was about 66 per cent., while the percentage was considerably larger in the lymphatic. Among the children of foreign born parentage they possess more of the traits of the lymphatic than they do any other, and the defects of vision are considerably greater. This is merely an intimation of what may be our work in the State, as outlined by the committee appointed to do this work. I think perhaps the blanks will explain themselves, and I should be pleased to have the teachers present take them. If you care to do so, take these blanks, outline a scheme for temperament and mark results. I should be glad to have them sent to Lansing. My ambition is to collect several thousand; and by placing them in the hands of an expert, perhaps we may get something out of them.

GENERAL.

The following general questions, as well as many others that will suggest themselves, will enable one to know more of the child nature. Observe that many children have not a few traits in common.

Notice if memory is quick or slow, and if it is enduring. Does the child forget slowly? What is memorized more quickly—names of events, persons, places, or thoughts? Test auditory memory; visual memory. Is the child attentive and easily interested? In what most easily interested? Is there a keen sense of right and wrong? Name acts considered wrong. Does he decide questions for himself? About what does he ask questions?

Does he write well? Draw well? What does he like to draw? Read a story or poem to the child and ask him to draw pictures illustrating it. Does he exaggerate? Is he truthful? What stories does he like best? What form of punishment is most effectual? Have you noticed if the child has good and bad days? Are they frequent? Has he self-control? Does he readily influence his companions? Is he a leader? Do you regard him as a good or poor pupil? In what does he excel? What is his ambition? Does he make few or many gestures?

Send reports of any observations you may make, either upon the blank or upon separate sheets. When enough of these reports are received, they will be placed in the hands of some specialist for compilation.

SUPT. J. W. SIMMONS of OWOSSO:

It was hinted in one of the papers that the work of the teacher was studying the pupil, and the work of the superintendent was studying the teacher. I wish to add a word upon that point. We have a great many teachers who need studying, just as much as we have a great many pupils who need it, and I have noticed that those teachers who come into my office, move the waste paper basket from its place, draw up a chair and sharpen their lead pencils, and then go away leaving the chair in the middle of the room, those who take my reference books and leave them where they happen to be when they are through with them, *these* are the teachers who have the same things to contend with in their pupils. I have made some excursions to those rooms and examined the teachers' desks. I have noticed that the drawers of the desks looked more like a dumping ground than anything else. When I find a desk with things orderly, I find a room that is ditto; and so I wish to say that disorder in the school room comes from the teacher's not having a proper ideal. A great many failures in the school room are caused by poor ideals on the part of the teacher. If we will study the teacher and help her to better ideals, I think the teachers will study the pupils. Many of my teachers have improved their work, and have come to me and said that, by following the line of child study which I had outlined, they had reached pupils they had considered beyond help, simply because the teacher did not understand the pupils.

SUPT. G. R. CATTON of Cadillac:

The argument in favor of child study, in my opinion, is based upon two principles:

First, That no two children are exactly alike, nor, indeed, anywhere near alike; and that the proper conditions for an all around development cannot be supplied unless the most prominent differences are ascertained;

Second, The circle of no child's needs is bounded by just that amount of the teacher's attention necessary to give him the usual rank in scholarship and deportment. If he comes to us healthy, he has a right to go from us healthy still. If he comes to us in ill-health, it is still his right that the one who has charge of him nearly half of his waking hours should become sufficiently familiar with his defects to assist him to grow out of them, and also to adapt the instruction to the difficulties under which he labors. This claim is all the more imperative, if neither he nor his parents are aware of these defects. If he comes to us with a normally constituted mind, it is his right that, when he goes from us, all his faculties be in just balance and proportion. If he comes to us with more memory than imagination, or more of both than of reason, or if mental power is more active in any one direction than in another, it is his right that these conditions should be known, and that our expectations of his accomplishments be regulated by them. If he shall come to us with certain inherent abilities that would give him excellence in a certain career in life, he has a right to that amount of careful attention necessary to discover to him that arena upon which he can best exert himself; and certainly the race has a right to demand that the public school be estopped in being a party to the frightful economic and artistic waste that is resulting from young people's choosing a career to which they are not adapted;

Finally, If he shall come to us with tendencies that move him away from right ideals, it is his *dearest* right that the teacher ascertain how he came by them, in order to replace them by the habit of right doing.

We can erect school buildings of the most approved hygienic plans, complete in every appointment and facility; we can make the best possible selection of studies, and, by correlation or otherwise, arrange to secure the highest order of results in their presentation; but unless we enlarge our view of the scope of the child's claims upon the teacher, until it includes the ascertaining of his physical, mental, and moral peculiarities, we shall still be making a fundamental error. That we have been making this error, a simple argument will demonstrate. When some children enter school, they already have defective sight or hearing; or the spine may be crooked, the chest sunken, or the blood disordered. Now, it is charged against the school that, by its ignorance or indifference, it not only intensifies the bad condition of these defects, but it induces like conditions in those who at first were entirely free from them. If it is true that the school has been unmindful of these essential physical requirements, much more would it fail to discern those intellectual peculiarities and temperamental differences which alone can determine the character of the instruction each child should receive. To be so unobservant as to induce or intensify poor eyesight, as statistics prove the school has done, makes it certain that there has also been the larger guilt of misunderstanding and neglecting the needs of a higher nature and giving its growth a wrong direction. Therefore, to make a careful and systematic study of the child, is a prime necessity in education.

Impressed with the importance of the subject, in the Cadillac schools we have made a beginning where I believe child study should begin; namely, by ascertaining what we can of the physical characteristics of our children. This not only seems the logical beginning point, but it is a point at which the subject may be taken up with very little assistance beyond that which good common-sense supplies. In fact, the few lines of this work taken up by us, have simply operated to extend or supplement the knowledge of the child already acquired by the good sense of the teacher. We have been able to make a test of the eyes, sufficient for our present purposes, by the use of Queen's test cards. These tests have thus far been made by the superintendent, usually in the presence of the regular teacher and in her room, though I like best those results that are secured by testing a few children at a time in the office. Tests of the hearing have also been begun. The ticking of an ordinary watch can be heard by the normal ear at a distance of about five to eight feet. When the hearing is to be tested, the pupil is blindfolded, an assistant covers the ear not being tested, and the watch is then moved carefully toward the pupil; after a few trials, the distance at which the ticking can be plainly heard is ascertained and recorded. The other ear is then tested in like manner. We have not now these tests complete enough to tabulate, but a few good things have resulted:—first, there is not a single room in which we have not found from one to three pupils who were seated where, because of defective seeing and hearing heretofore unknown by the teacher, they were at a positive disadvantage; second,

some of these defects, well ascertained, the pupil himself was not familiar with, neither were his parents; third, some of the failures due to these defects had been previously attributed to stupidity, obstinacy, or sullenness; fourth, the effort to ascertain these simple facts has quickened the interest of the teacher in all that pertains to the pupil and has established more sympathetic relations with him.

It is beginning to be conceded by the teachers that they must enter more minutely into the pupil's life, and that they have duties other than they had supposed.

Besides acting on the belief that a knowledge of the child's physical characteristics is necessary in order that his training may rightly proceed, we have also paid a little attention to securing the child's views of discipline. It is greatly to be feared that the school has been as arbitrary in its discipline as it has been negligent in the pupils other needs. On the theory that that discipline is most wholesome in which the justice of the penalties inflicted is plainly apparent to the pupils themselves, we set about to learn the opinions of the pupils regarding the justice of those punishments commonly in vogue. For a language lesson the pupils were asked to write an account of some punishment received that was considered a just punishment, and to tell why they considered it a just punishment. They were also asked to write an account of one they considered unjust, and to tell why they so considered it. Care was taken to prevent exaggerated or mythical accounts, and to secure the actual thought of the pupil in each test. They were encouraged to feel that what was most desired, was not so much their account of the transaction, as their opinion of it, without regard to what they believed the opinion of the teacher to be. A careful examination of these accounts showed that over one-half of the pupils considered a punishment just, because it was received for the violation of a well known, long established rule. About one-third concurred in the justice of the penalty, because they had violated some recent direct command. The remainder deserved it because they knew their conduct would be disapproved by a kind teacher. No pupil was found who would assert that he never had received a just punishment. The teachers were many times surprised to find that affairs in which they felt pupils might have retained some resentment, were alluded to by them with full confidence in their justice. Fully one-third of the pupils had never received a punishment which they considered unjust. Two-thirds of the remainder asserted that, when punished unjustly, they were entirely innocent of any offense. A few had partners in the offense who went scot-free. The rest had wrong ideas of what certain offenses deserved.

A few valuable lessons along the line of discipline have resulted from these studies. The teachers may be sure that, where discipline is meted out in a spirit of justice, kindness, and desire for the good of all, there is practical unanimity of sentiment in the room sustaining it. The perverted notions of a portion of the pupils as to what are really offenses against the school's welfare, need to be corrected by the teacher. The teachers have also been set thinking by the large number who assert that they have been punished when absolutely innocent. So many mistakes have been made. There must be some way to avoid them. Also, when many of the so-called offenses are set forth in detail by the pupils, it is seen that they are petty. That worry or excitement on the teacher's part was to blame for their being noticed at all, or else the teacher has fallen into a habit of nagging and snapping which nobody but children will stand, and they simply because they know there is no appeal from it.

The little we have done scarcely deserves to be referred to. It is only mentioned because of the different spirit we feel has pervaded all our work on account of it. Our feeling in regard to child study is that all who are desirous of supplying the best possible conditions for child growth, will find in it that which will supplement and extend whatever information may have been already acquired by common sense methods; and that its results can be made most practical. Of course we realize that it will take years for the collection of enough data to reduce the subject to a science. During this time many will become confused over the vast number of topics suggested in the different syllabi, and will regard it as a fad, saying, "If I may not handle the child until I am competent to test him by all the formulæ of these syllabi, then I must not touch him at all for fear I may cause his evaporation if not annihilation." Others will cause it to be regarded as a fad by the headlong way in which they will endeavor to apply it. Having in their whole career as teachers searched every corner of the educational realm to find something new to put inside of the child, and having ransacked all pedagogy for new devices to get it inside of him, they will now be moved by a feverish and mischievous eagerness to find out what is inside of him. Still others will try to substitute for actual observation and contact with childhood, the gorging of themselves with the literature of this subject which is now beginning to abound. Through all this, however, the intelligent student of the subject will persevere, clearly perceiving that it is the great educational movement of our time, out of which is finally to come a pedagogy of resourceful and unfailing methods.

Supt. W. C. Hull of Albion, moved that the committee on child study appointed by Superintendent Pattengill, consisting of A. S. Whiting, C. O. Hoyt, O. L. Miller, Harriet Marsh, and Ada V. Harris, be endorsed by the association and appointed for the ensuing year, whereupon some inquiries were made regarding this committee.

Supt. Hoyt explained that it was merely a temporary organization appointed by Supt. Pattengill with a view to making a beginning in this important work; that the committee met in Detroit last October and, after discussing the situation, decided upon getting out a Child Study Manual for free distribution, which would soon be ready for publication. That they also decided to present the subject at the State Teachers' Association, hoping such action would be taken as should result in a permanent organization.

Supt. Pattengill then asked to make a statement concerning this organization, which was as follows: "I did not wish to wait until the meeting of this association before inaugurating this work in Michigan. At several national meetings which I have attended, it was my pleasure to hear this question discussed very fully; and in my converse with fellow superintendents in other states, I found that the work had been inaugurated in several of these states and was producing good results. It occurred to me, therefore, that we might save nearly a year of time by having this committee appointed, getting fairly at work, and then presenting the matter before this meeting. The State Association may take such action as it pleases concerning the endorsement of this committee or the selecting of a new one. I do not doubt that there will be many who will be interested and want to take up the work; and whether the Association endorses the movement or not, it will go on in this State. Because there may be some here who will do much that seems not pertinent to school affairs, it does not necessarily follow that there is not much of extremely practical value in this matter. He who makes no mistakes will never make anything, and I hope to be delivered from such a state of affairs. I'd rather have a hundred mistakes than be so afraid of making mistakes as never to make anything. We should therefore take what is of value and use it for our schools. In this discussion which has been presented so carefully, it seems to me that we can see many advantages to be gained from this work. So far as the Department of Public Instruction is concerned, it stands ready to assist you in every way; and in order that the preparing of the manual may not be a financial burden to you, I think I can safely say that such manual will be published at the expense of the State by the Department of Public Instruction. It seems to me in doing this, I am doing no more than my full duty in this respect.

After this explanation, Supt. Hull's motion was unanimously adopted. And Dr. G. Stanley Hall, having unexpectedly appeared, he was presented to the association by President Thompson, reponding to the introduction with some well chosen remarks. In mentioning his favorite theme, he made two special divisions of the good results of child study: —first, the reactionary effect upon the teacher; second, the benefit accruing to science,—the addition it makes to the sum total of all human knowledge.

Prof. Austin George announced a reunion of the Normal Alumni to be held in the parlors of the First Baptist church immediately following a supper to be served by the ladies of the same church, and a cordial invitation was extended to all.

Supt. A. S. Whitney then asked for permission to present a motion, saying, "As next June closes the twenty-fifth year of Dr. Angell's presidency of our State University, it seems eminently fitting that we, the chief educational body of the State, should make proper recognition of his great services to our cause by means of appropriate resolutions. In consequence I would move that a committee of three, with power to increase their number, be appointed by the chair for such purpose." This motion being duly carried, the president named as such committee Supt. A. S. Whitney of Saginaw, Supt. W. S. Perry of Ann Arbor, Prof. F. A. Barbour of Ypsilanti.

The following committees were also appointed:

Committee on Resolutions.—Dr. R. G. Boone, Supt. E. L. Briggs, Harriet Marsh, Supt. David McKenzie, Supt. W. J. McKone.

Committee on Nominations.—Commr. D. E. McClure, Supt. F. R. Hathaway, Supt. E. A. Wilson, Supt. C. W. Mickens, Prof. W. H. Sherzer.

Adjournment.

THURSDAY EVENING.

Upon arriving at the Baptist church it at once became apparent that some one possessing commendable zeal, combined with artistic skill, had labored to give both parlors and dining hall an inviting appearance, for graceful festoons of the Normal blue and white vied with our national colors in brightening the scene, while trailing sprays of smilax enwreathed the toothsome viands that loaded the tables. It was a jolly crowd that filled the rooms and made sad havoc with the eatables, and the time between supper and lecture was brim full of witty speeches and merriment.

Dr. Hall being first called upon, made a happy hit by commenting upon the apparent zest and happiness of Michigan pedagogues, and especially of their leader, who he said reminded him of the Greek word *euphoria*, translated "the joy of living." He wanted to coin a word and say he regarded Supt. Pattengill as the most *euphorious* person he had ever met.

Dr. Boone, Prof. Strong, President Thompson, Supt. Plowman, Profl D'Ooge, Prof. Barbour, Prof. Putnam, Prof. George, and Supt. Pattengil. each responded to the call of Supt. Hull, who acted as master of ceremonies, the program being frequently enlivened with singing, in which all joined with a will, especially in the following song, prepared for the occasion by Prof. George, printed copies of which were distributed to all.

MICHIGAN STATE NOTMAL SCHOOL—SONG.

AUSTIN GEORGE, '63.

State Normal School, we sing to thee,
Michigan, my Michigan!
Within thy courts, we love to be,
Michigan, my Michigan!
Thy towers high and gray old walls,
Thy lecture rooms and study halls,
Inspire us yet when duty calls,
Michigan, my Michigan!

In '52 with hope and pride,
Michigan, my Michigan!
Thy Normal doors swung open wide,
Michigan, my Michigan!
The clustered years our memories fill
With names that give the heart a thrill,—
Welch, Mayhew, Estabrook, and Sill,
Michigan, my Michigan!

The Normal takes thy choicest youth,
Michigan, my Michigan!
Instructs in pedagogic truth,
Michigan, my Michigan!
Commencement day, a well-trained band
She sends them forth with torch in hand,
To light new flames throughout the land,
Michigan, my Michigan!

Though Normal Green and White we love,
Michigan, my Michigan!
Old Glory's folds e'er float above,
Michigan, my Michigan!
When traitors war on union made,
Thy Normal sons sprang to her aid,
Their lives upon her altar laid,
Michigan, my Michigan!

The student life in Ypsi town,
Michigan, my Michigan!
Through all thy realm holds high renown,
Michigan, my Michigan!
Lyceum S. C. A's fond spell,
The rush, the club, the dinner bell—
The Normal girl! the Normal yell!!
Michigan, my Michigan!

Eight o'clock found a large audience assembled in the M. E. church to listen to Dr. Hall's lecture on "Child Study." While awaiting his appearance the M. E. orchestra (composed of various stringed instruments) discoursed sweet music. Upon his arrival, President Thompson introduced the speaker by saying that, while many important questions are being discussed in the educational world, most prominent among them is child study, and he took great pleasure in presenting its most distinguished American advocate, Dr. G. Stanley Hall of Clark University.

The lecture was so comprehensive and scholarly, and so full of suggestive ideas for the teacher, as to be well worth coming a long way to hear, which will be seen from the following abstract:

Dr. Hall began by stating that the microscope is the most important of all scientific instruments, since its use has created at least a dozen new sciences, all of which are directed to the laws of growth. The miracle of all miracles is the perpetual miracle of growth, and its laws are being studied in every biological laboratory in the land. Every person present had once been a single miscroscopic cell, which, by division and subdivision, had passed upward through higher and higher stages until it became first a vertebrate, then an ape-like animal, and finally a civilized human being. Heretofore we have studied only a cross section, or the adult mind; now we are entering on the field of the soul, and its name is Child Study.

The 72 rudimentary organs of the body all point to some former period in its physical evolution from lower forms of life; and just so there are rudimentary organs, or "tad-pole tails" of the mind. Thus an attempt prematurely to suppress those childish traits which so many regard as useless, is as fatal to the full development of the mind as to cut off the tad-pole's tail in order to hasten its transformation into a frog. The Santa Claus myth and the fairy lore that means so much to children, are powerful factors in the development of the religious nature; and we can have no full and perfect christian reverence without cultivating the religious instincts of the child upon its natural objects of worship. Nature worship is the best method of cultivating reverence in the child. The child is the culmination of all development forces, and Nature is a great reservoir of force. Nothing so develops reverence in the child as the phenomena of thunder or mountain scenery. Adolescence is the great re-creation of the soul, and during this period the rudimentary organs of the mind must be given sufficient play to develop, fall off, and become the stimuli of the higher organs.

Every infant and many adults, bear numerous marks of the primitive stages of existence; as for instance, the congenital fears that dominate the lives of many individuals. Thousands of blanks have been sent out among teachers, as a means of ascertaining the fears, loves, and methods of thought employed by children. From 30,000 returns Dr. Hall has obtained statistics showing that 72 per cent of very young infants possess an instinctive fear of fur, many are afraid of protruding teeth, and many more exhibit a fear of large staring eyes, all of which he regards as a survival of the primordial fear that dates from the time when man's chief enemy was a furry, large-eyed animal with cruel teeth. Thus child study recognizes these congenital fears and defects, striving to make education conform to Aristotle's definition that "Education consists in fearing most that which ought most to be feared."

Among the immediate practical advantages of child study, Dr. Hall mentioned the fact that, as too constant repetition produces neurosis, much of the in-and-out weaving of the kindergarten is being abolished, and kindergarten gifts are being made larger, in deference to childish preference; that writing at too early an age, as well as the continual drawing and handling of symmetrical objects, is also productive of nervousness, and our drawing books need a radical reconstruction, as every child naturally at first draws animate nature; that rote singing should precede note reading by the same period intervening between speaking and reading.

As the three leading advantages he stated first that child study is the woman's method. Man can run a machine school, but in matters of developing the heart, woman has her kingdom. She teaches more by an invisible bond connecting her to each individual child; second, it brings the higher and lower grades together, and in this matter of co-operation, Michigan is the banner State; third, while education used to be regarded as a kind of pedagogical knack, we are coming to take a broader view, and there is now promise of the greatest educational Renaissance ever known.

This excellent and inspiring address concluded with the following impressive thought: Unity of the child with nature, that is the glory of the child; unity of the teacher with the child, that is the glory of the teacher.

FRIDAY, A. M.

The morning dawned bright and cheerful as if smiling upon the numerous educators who filled Representative Hall so full that chairs were in requisition even at the opening exercise, which was a beautiful vocal solo entitled "At the Convent Gate," by Maude La Rose of Lansing. Scripture reading and prayer by Rev. C. F. Swift followed, and Secretary McKenny read a telegram of greeting from the Idaho teachers in session at Boise City.

Supt. M. A. Whitney of Ypsilanti, as chairman of the committee of ten appointed one year ago by the State Association to arrange a model course of study for graded schools, next introduced the work of the morning by explaining that the course to be presented was at best but a tentative one; that the committee first met last May and appointed sub-committees which had since been at work on the respective sections; that a preliminary report was now presented in the hope that it would be freely discussed, as both the radical and semi-conservative elements are represented at this gathering; that printed outlines of the various courses were ready for distribution and any one not now ready to express an opinion was invited to put his thoughts into writing and send them to him at Ypsilanti where they would receive attention. Supt. Whitney also expressed a hope that this committee might be continued at least another year, so that, in the light of the discussion here elicited, it might do still better work in the future.

The following further explains the *modus operandi* of the work:

PRELIMINARY REPORT OF THE COMMITTEE ON COURSE OF STUDY.

To the Michigan State Teachers' Association:

Your committee appointed one year ago to draw up a course of study for the schools of the State and to present such a course at this meeting, begs leave to submit the following:

Acting with committees of the Schoolmasters' Club and Superintendents' Association, sub-committees as follows were chosen on the three sections of the course, primary, grammar, and high, each section including four years of the course:

HIGH SCHOOL SECTION.

W. A. Greeson, A. M., Prin. High School, Grand Rapids, Chairman.
F. C. Newcombe, B. S., Ph. D., Dept. of Biology, University of Michigan.
E. A. Strong, A. M., Dept. of Physics and Chemistry, State Normal School, Ypsilanti.
J. W. Simmons, Supt. Public Schools, Owosso.
Miss Lucy A. Sloan, M. S., Dept. of English, Lansing High School.
Hamilton King, A. M., Prin. Preparatory Dept., Olivet College.
W. C. Hull, Supt. Public Schools, Albion.
E. L. Briggs. Supt. Public Schools, Coldwater.
Orr Schurtz, Prin. High School, Grand Rapids.
C. H. Gurney, A. M., Prin. Normal Department, Hillsdale College.

GRAMMAR SCHOOL SECTION.

C. T. Grawn, B. Pd., Supt. Pub. Schools, Traverse City, Chairman.
W. H. Sherzer, M. S., Dept. Biology, State Normal School, Ypsilanti.
T. L. Evans, Supt. Public Schools, Jackson.
C. B. Hall, Prin. Webster School, Detroit.
C. F. R. Bellows, A. M., C. E., Prin. State Normal School, Mt. Pleasant.
E. C. Thompson, M. Pd., Supt. Public Schools, Saginaw, W. S.

J. A. Stewart, Supt. Public Schools, Bay City.
A. J. Murray, Supt. Public Schools, State Public School, Coldwater.
E. C. Warriner, Prin. High School, East Saginaw.
C. E. Palmerlee, Commissioner of Schools, Lapeer, Mich.

PRIMARY SCHOOL SECTION.

W. S. Perry, A. M., Supt. Public Schools, Ann Arbor, Chairman..
Miss M. E. Coffin, Supervisor of Schools, Detroit.
Miss Harriet Scott, Prin. Training School, Detroit.
Miss Brown, Primary Teacher, Jackson.
Miss Kate H. Davis, Training School, Saginaw, E. S.
E. L. Miller, Supt. Public Schools, Charlotte.
Austin George, A. M., Prin. Training School, State Normal School.
David MacKenzie, Supt. Public Schools, Muskegon.
Miss Louise Miller, Special Teacher of elementary Science, Detroit.
Miss Harriet F. Bailey, B. L., Grand Rapids High School.

Reports of these sub-committees were made to your committee early in December, but too late for your committee to discuss. Hence it was thought best by your committee to present the reports of the sub-committees for discussion at this time, hoping that we may here have an expression of views that in the future will be helpful to your committee, should you desire to continue it for another year.

It will be noticed that no attempt has been made to correlate the different sections of the report nor, with slight exception, the different branches of the report of the primary and grammar sections. This will be the work of your committee at some future time. It will be noticed, also, that no mention is made of music, drawing, and penmanship in this preliminary report. This is not an oversight on the part of your committee, but these subjects will be provided for at some future time.

The thanks of the committee are due to Prof. Austin George of the State Normal, Miss Harriet Scott of Detroit, Supt. W. S. Perry of Ann Arbor, and Prof. W. H. Sherzer of the State Normal, for valuable assistance rendered.

Respectfully submitted,

Committee on Course of Study, { M. A. WHITNEY, Chairman,
DAVID MACKENZIE, Sec'y,
R. G. BOONE,
B. A. HINSDALE,
MISS M. E. COFFIN,
A. J. MURRAY,
W. A. GREESON,
MISS LOUISE MILLER,
C. B. HALL,
C. H. GURNEY. }

Printed outlines of these courses were ready for distribution, and Supt. Perry, of Ann Arbor, chairman of the sub-committee on primary work, was next called upon, saying: "My part in presenting the report of primary section will be brief. I trust the Association are sensible of the fact that it placed a serious responsibility upon this committee when it instructed them to present here a 'model' primary course of study.

The committee has learned anew that no truth of high value slips into the world and settles down to business without a struggle. All good institutions and doctrines seem to have bought their way to recognition and adoption. At the present date, no part of the social order appears to be more disturbed, more agitated, not to say convulsed, than the department of education. Every considerable educational convention is a battle ground. Every teacher must go well panoplied with psychology and pedagogy, if he would maintain his upright position. It was no surprise to us then and, I may as well confess, no matter of regret either, that at the first meeting of this committee we found we had brought with us the most diverse opinions—were in opposing camp s.

Our first business, evidently, was to take our bearings and to mark off our several beliefs,—then to bring our divergent theories face to face, in order to compare, to form judgments, to eliminate error, and to adopt what seems to be truest. And here we offer to you two well defined, strongly contrasting theories of primary education, each embodied in a course of study so that opposing features may be more easily considered.

The writers of these two courses have scrupulously endeavored to make them each consistent with underlying principles,—the one typifying the New Education in radical form, the other representing the Old Education in its latest and best estate. One of them may suggest revolution; the other, evolution. By this counter presentation, we hope to elicit from the Association the most thorough-going discussion, the most unsparing criticism. The authors of these respective courses will have an opportunity to discuss their work, either in explanation or in defense, and a thorough discussion here will make more easy the work still to be done on the course of study."

We here insert the two courses referred to, one by Harriet Scott of the Detroit Training School, the other by Austin George of the Ypsilanti Training School, with a supplementary course in Nature Study by Louise Miller, supervisor of this work in Detroit.

SUGGESTED COURSES FOR PRIMARY GRADES.

COURSE PREPARED BY HARRIET M. SCOTT, PRINCIPAL DETROIT NORMAL TRAINING SCHOOL.

The idea which lies at the basis of this course of study is that each individual is to be fitted to perform his function in life. It presupposes that the individual evolution is analogous to the race evolution, and that the social organism has repeated or carried on the development of the individual organism.

The evolution of the race has been along four different lines: 1. From the simple institution, the family, to an organized set of institutions comprising the family, school, social life, industrial life, state, and church. 2. The gradual growth from a state of subordination to physical environment, to a state in which man has attained some degree of dominion over it. 3. The development of a system of measuring by the use of standards and the application of number. 4. The ethical evolution from selfishness to altruism, and from physical to spiritual.

The experiences of the race as they are to be used in the school room, are embodied in children typical of the epochs studied. The teaching begins with fictitious characters, passes to historical characters, then takes up the experiences of historic communities, of nations, and of peoples.

In each step of the progress the historical epoch used, is made to interpret to the child the corresponding stage of his own development. The historic epoch is valuable only as an interpreter of the present.

The individuals and people studied are: Agoonack, the Eskimo; Hiawatha, the Indian; Kablu, the early Aryan; Darius, the Persian; Cleon, the Greek; Horatius, the Roman; Wulf, the German; Gilbert, the French boy of the age of feudalism and chivalry; Columbus, of the early renaissance; Raleigh, of the later renaissance; the Pilgrim community in England, Holland, and America, and other typical communities in our own colonial period; the American people, first in the conquest of their physical environment, then in growth as a nation. This concludes the primary course.

Each character is studied under the topics,—character, appearance, clothing, home, school, social life, industrial life, state, and church. Each topic is developed under the heads,—the ideal, the real, comparison, measure, reproduction, and expression. In this study of development would be included history, literature, science, arts, inventions, and industries.

The formal side of the work includes the ordinary subjects of the school curriculum. I will consider them one by one, showing how each is used in the course here proposed.

READING. Many of the lessons are in the form of sequences, which are based upon the study of the subjects before mentioned. Selections from the best literature are used, beginning with the lowest grade, and some use is made of literary, geographic, historic, and scientific readers. Connected with one side of the reading work is word-building by means of work in phonics. For spelling words valuable for reproduction are taken from all subjects.

LANGUAGE WORK includes reproduction by means of sequences of the essential impressions gained in all the different lines of work. Only such technical points are taught as are demanded by the oral and written reproduction. Idioms are taught as they are required by the children for adequate expression. A special study is made of common words handed down in our language, from the language of the historic periods under consideration.

GEOGRAPHY in the first and second grades is included in the study of the child's environment. His environment is compared with that of the character studied. In the third grade, generalizations are made from the study of particular physical features, and there is also a study of our county and state. In the fourth grade the life history of the planet is made a basis for the study of the physical condition of our own continent. Finally, we study physical conditions as affecting our history, and history as modifying physical conditions.

FOR ARITHMETIC I would substitute the term MEASURING. The physical and institutional relations (requiring the use of number and standards of measurement) involved in the study of the individuals of the various epochs as compared with those of a child of the present time, furnish to the pupils abundant material for the practical application of processes of measuring. By generalizations from these the rules and definitions are derived.

While other modes of expression, as painting, molding, are used, I will speak of those usually required. Writing grows out of the demand for expression in language. Practice on elements and letters is given as an aid to expression. Drawing also is regarded as a means for the reproduction of impressions and expression of ideals. The type forms are studied as necessary to the expression of natural and artistic forms based upon them.

Music is studied as a means for the production and expression of desirable states of feeling. The technical work has for its object freedom in expression.

Physical culture should make the body a ready tool for the soul, and furnish such bodily conditions as will give scope for the highest mental and moral potentialities of the individual. Exercises should follow the order of development from the physical to the spiritual.

COURSE PREPARED BY AUSTIN GEORGE, PRINCIPAL MICHIGAN STATE NORMAL SCHOOL.

NOTES.

1. Nature study should be a feature of each grade, and may be made the basis of some of the work in language, reading, and drawing. The phenomena of nature, following the order of the seasons, present abundant material. The general topics may be pursued in the different grades at the same time—the particular topic, and the quality and extent of the work in each grade, being determined by the advancement of the children and their power to observe, interpret, and infer. The object is not to make scientists of children, but to develop power of observation and give a store of accurate concepts, and to show the relation of nature to human interests.

2. The reading work should be along three well-marked lines:

(*a*) The ordinary reading books—from one to two in each of the grades—with corresponding supplementary reading books from other series.

(*b*) Nature and geographical readers, and history stories, as supplementing the work in these subjects and to be read by teacher or pupil largely for information.

(*c*) Literature: (1) foundation work of myth, fable, and folk-lore; (2) real literature of a high order, liberal portions of which should be committed to memory.

3. Each of established school subjects should receive such proper and independent treatment as to develop it in its logical order.

4. As to concentration: The idea that one subject should be taken as the centre of the work of the grades, the work in other subjects to grow out of this centre and the other subjects to find treatment only as they are brought into view by the treatment of the central subject, is in the main rejected; it can have free application in the first grade only.

5. As to correlation: The idea that subjects have interrelations and should be treated accordingly, is freely accepted; but this interrelation does not imply any strained or forced correlation. True correlation consists in making use of the different subjects whenever, in the treatment of any one subject, the others are necessary to make the subject under consideration clear in its development, its exposition, or its application.

NATURE STUDY.

All Grades.—Observation of natural phenomena and forces as exhibited through the year. Daily record of sun, cloud, rain, fog, dew, frost, snow, wind. Plants and animals as affected by the seasons.

Special observation and study—selections from the following:

First Grade.—Trees,—spruce, horse chestnut, maple, apple; butterfly, sheep, dog, rabbit; robin, dove; corn, bean.

Second Grade.—Trees,—arbor vitae, oak, elm, cherry; ant, horse, cat, squirrel, blackbird, hen; wheat, pea; sand, pebbles.

Third Grade.—Trees,—Norway pine, hickory, locust, peach; grasshopper, bee; goat, fox, sparrow, duck; oats, pumpkin; metals.

Fourth Grade.—Trees,—white pine, walnut, ash, pear; spider, fly; cow deer; hawk, turkey; grasses, grains, flowers; minerals.

NOTE.—The selections for grade study should embrace types, and should vary according to locality.

READING.

First Year.—Script lessons from the blackboard—sentences and words mainly from responses by the children about common objects and other work; analysis of words into elements; synthesis of words; two first readers; nature readers—appropriate selections; original lessons.

Second Year.—Two second readers and nature reader—appropriate selections; phonic drills, diacritical marks, use of new words in original sentences; original 'stories' on nature work, daily life, etc.; Æsop's fables; poems—repetition.

Third Year—Second readers, third readers, nature readers, phonics, etc.; reading for information begun; history stories, fables, folk stories, and myths; literary selections—four during year, carefully studied, memorized, and recited.

Fourth Year.—Third readers, fourth readers—selections; information reading—nature, geography, and history according to work; literary—classic stories, poems studied, memorized, recited; use of dictionary; home reading encouraged and directed.

LANGUAGE.

First Grade.—Conversation, oral expression of thought in nature study, story, and reading work; written words and sentences from same. Pronunciation, idioms, form; capitals, abbreviations.

Second Grade.—Oral and written expression of thought in all lessons; reproduction of fables, stories, and poems. Pronunciation, grammatical and manuscript forms.

Third Grade.—Reproductions, narrations, descriptions, and letter writing; manuscript forms, possessives, plurals, etc.

Fourth Grade.—Written work in all subjects; compositions and letters; word analysis and comparisons for technical work, using book for latter; spelling lists from reading and other lessons.

GEOGRAPHY.

First Grade.—Nature work.

Second Grade.—Nature work; environment. Direction,—points of compass, location of places in the neighborhood. Sand modeling.

Third Grade.—Home Geography.—School room, building, and grounds—each mapped to scale; natural features of locality,—plain, slope, terrace, hill, valley, river, rock, soil, etc.; influence of rain, frost, wind, sun, etc.; weather, climate; vegetation, animals; people,—classes, occupations; city,—streets, schools, government, officers, etc.; excursions, township and county mapped and studied as types. Text-book one-half year.

Fourth Grade.—Earth as a whole; globe,—position in the solar system, revolution, form. Oceans, continents, hemishpheres; N. A.,—countries, U. S., St. Lawerence basin. Detail study of Michigan,—position, boundaries, divisions, climate, winds, surface, drainage, soils, natural resources and productions, industries, people, cities, government, institutions, etc.; map drawing, moulding; photographs, engravings, specimens, etc. Text-book.

HISTORY.

First Grade.—Home, primitive homes; historical days.—Thanksgiving, Christmas, Easter, St. Valentine's day, Washington's birthday, Decoration day. Historical people.

Second Grade.—Group of homes; social and business intercourse; means,—roads, wagons, bridges, boats. Historical days and historical people.

Third Grade.—Organized groups of homes—community; common interests and responsibitities, local institutions. Local stories of Indians and settlers; national stories,—Penn, John Smith, Miles Standish, etc. Implements and inventions—local, Franklin, Howe, Watts, etc. Heroic stories (general). Historical days and men.

Fourth Grade.—Biographical—Columbus, Lincoln, Stephenson, Morse. Aggregation of communities—the State; aborigines; explorers,—Marquette, La Salle, Cadillac; French occupation,—Detroit, Sault Ste. Marie, etc.; English occupation,—Pontiac's conspiracy, etc.; American occupation,—Hull's surrender, Perry's victory; State,—development and prominent men—Cass, Mason, Pierce, Chandler, Edison. Thinksgiving,—Governor's proclamation.

ARITHMETIC.

First Year.—Numbers from 1 to 10; combination and separation,—with objects without objects, with figures and signs of operation; 2^s, 3^s, 4^s, 5^s, halves, thirds, fourths, fifths, within limit 10; counting to 50; reading numbers to 50; measurements—inch, foot, yard, quart, pint, minute, hour, day, week, cent, nickel; Roman notation to 12.

Second Year.—Combination and separation from 1 to 20, as before; counting by 2^s, 3^s, etc., to 100; multiplication table through 5^s; halves, thirds fourths, fourths, fifths, tenths; reading and writing numbers to 1,000; measurements reviewed and extended,—gallon, peck bushel, ounce, pound, month, year, dozen, coins to one dollar, practical problems within the limit 60; addition and subtraction in column; Roman notation to 60.

Third Year.—Reading and writing numbers to 10,000; addition and subtraction,—second cases, sums and minuends not to exceed four places; multiplication table through 12^s; halves, thirds, fourths, etc.; 100%, 50%, 25%, 75%; multiplication—multiplier not to exceed two figures; short division; measurements reviewed and continued; practical problems with two operations within limits of 144; Roman notation to 100.

Fourth Year.—Reading and writing numbers of three periods; the fundamental operations; long division—divisor 10, 20, etc.; development of fractions with simple reductions and operations; decimals of two figures through multiplication; denominate numbers,—tables and simple reductions; practical problems; bills; Roman notation to 2,000.

Drawing, music, penmanship, and physical training, with elementary physiology and hygiene, should receive appropriate attention in all these grades.

OUTLINE FOR NATURE STUDY BY LOUISE MILLER, SUPERVISOR OF NATURE STUDY, DETROIT.

There is much work in primary schools masquerading under the guise of Nature Study, which is unworthy its name.

The object of Nature Study in the schools is to have children study Nature, not read about it or hear some one talk about it, but to come in direct contact with it.

A child's ideas are crude at best, and he cannot see and hear unless he has been taught to observe and listen. He cannot have clear, correct judgments of things that have never been in his own experience. He cannot reason about that of which he has no correct judgments.

Life should be taken as the central thought, and all organisms studied in life cycles, and the effect of the changes in atmospheric conditions carefully noted.

Color, adaptation of structure to function, structure to environment, co-operation of animal and plant life, should be carefully studied in relation to the preservation and perpetuation of the species.

The relation of the mineral world, plant and animal life, is considered in connection with the great physical and chemical influence of the sun.

The work should be taken up under the heads of botany, zoology, physics, chemistry, meteorology, astronomy, mineralogy, and geology. These subjects should be carried along throughout the year, not in isolation but in very close and vital relation to each other, emphasis being placed upon that part of the work for which the lesson provides the best material.

The question of material is a serious one, and familiar plants and animals will serve as types and form a basis for reasoning about that which is beyond the child's sense grasp.

BOTANY.

Select a tree for continued study throught the year, according to outline given. If a soft maple is selected, compare the individual tree with all soft maples, and the characteristics of soft maples with other species of maples.

Fall.—Falling leaves, buds, protective and attractive coloration of seeds, distribution of seeds, storing of food by biennials, preparation for winter.

Winter.—Winter condition of plant life; protections.

Spring.—Reanimation of nature,—bursting buds, germination of seeds, flowers.

ZOOLOGY.

Fall.—Migration of birds, hibernation of animals, disappearance of animals, disappearance of insects; preparation for winter,—storing food, warm coverings, attractive and protective coloration.

Winter.—Adaptation of structure to food getting; compare winter habits and food with summer life conditions; show relation of teeth to kind of food, and the relation of length of jaw to perfection of hand as a prehensile organ.

Spring.—Return of birds and insects; community life; protective and attractive coloration; co-operation of animal and plant life.

Familiar animals as dog, cat, rabbit, squirrel, should be taken as types and comparisons made. Each grade should study the life history of one or more insects by observing the larva, pupa, image, and egg in the school room. A collection of nests will throw some light upon community life. The sanitary and economic relation of insects is important. The beauty, color, delicacy and daintiness of structure, grace of movement, should be prominent in all work.

PHYSICS.

Fall.—Magnetic needle. Relation of light to color of leaves, flowers, fruits, birds insects, and other animals; heat to evaporation and condensation. Effect of rain upon life.

Winter.—Frost and snow as protections and erosive forces. Snow crystals in relation to crystalline rock. Expansion and contraction of solids, liquids, and gases in relation to erosion, ocean currents, and winds. Conduction in relation to light, heat, sound, and electricity.

Spring.—Light and air in relation to plants and animals, as in germination and flying birds, etc.

CHEMISTRY.

Fall.—Chemical and physical changes in relation to the assimilation of minerals by plants, and plants by animals. Carbon in its interchange between plants and animals; coal. Field lessons.

Winter.—Effect of acids upon rocks in relation to formation of caves. Formation of crystals in relation to crystalline rocks.

Spring.—Presence of lime in water; relate to shell-bearing animals.

METEOROLOGY.

Daily record of atmospheric conditions continued throughout the year and close relations made.

ASTRONOMY.

Daily observations of position of sun and its effects. Location of constellations and observation of planets.

GEOLOGY.

Collection of pebbles and fragments of rocks; classify as to granite, marble, limestone, sandstone, slate, coal, etc. Effect of physical and chemical forces upon rocks. Relation of organic and inorganic, as found in coal and limestone. Study of life in fossils. Field lessons.

MINERALOGY.

Physical properties of rocks,—color, hardness, etc. Burn for organic matter; acid test for lime. Relate soluble rocks to plants, formation of caves, erosion, etc.

It has been possible to give only a general outline of the work which in the course will be graded, related, and consecutive.

All technicality should be omitted, and the material and experiments simple.

Nature Study should engender in the children an absorbing love for the good, the beautiful, the true.

Miss Scott being hereupon called to address the association, said she had supposed her duty ended with the preparation of her outline and had not expected to speak except in answer to questions or criticisms of her report; however she would be pleased to respond to any queries of whatever sort.

Supt. Perry suggested that the office of the "culture epochs" in a scheme of education is not generally understood, and that some elaboration of the principles involved would be welcomed by her auditors. Perhaps she would explain how the mythical characters, Agoonack and Kablu, with their suppositional environments, can be made to interpret to a child born into the civilization of this age, any stage of his development; or how a child of the present epoch can be so stripped of the numberless powers and possessions he has inherited from the intervening ages as to come under the influence, in any degree, of those twilight epochs of the worlds' life.

Miss Scott replied that her purpose in dealing with the various culture epochs was to take the child from the lowest moral standpoint and lead him on up through the experiences of communities, of nations, and of peoples, to the highest development. He needs to pass through the moral evolution of the race, the race as developed not only in the growth of institutions, but as developed in regard to his physical environments, as the child is influenced by his habitat. One way of doing this is by taking the moral ideas of different periods as embodied in children, typical of the epochs studied. Thus we have Agoonack, the Eskimo; Hiawatha, the Indian; Kablu, the early Aryan, and so on.

Dr. Hinsdale at this point asked several pertinent questions;—at what age the child is in the Eskimo period, and whether it is the Eskimo child that is studied or the whole compass and breadth of the Eskimo life; whether it is assumed that the children pass through these stages at corresponding ages, or whether there is an individual development to be taken into account. To which Miss Scott replied that the normal child passes out of the Eskimo period at about the age of five, and that it is the primitive Eskimo life as a whole that is studied, only the child is taken as its representative, since children are more interested in the child itself; that while one child may pass very rapidly through a number of stages, others may pass more slowly, so that to ascertain in what stage a child may be and what its needs, is leading to very close individual work. To Dr. Hinsdale's further query whether it is practical for our schools in its present form, the reply was given that it will be absolutely necessary to reduce the number of children one teacher can handle.

Prof. George then supplemented his printed outline with comments upon the four points—nature study, reading work, concentration, and correlation, as follows:

When I was asked by the chairman of the commitee to prepare an outline of a course of study for the primary grades, three requests were

made: 1. That I should represent the conservative or semi-conservative view. 2. That my manuscript copy should be limited to four pages of legal cap. 3. That I go into details sufficiently to indicate methods of work, which was of course clearly antagonistic to the second condition. Well, I took these points under consideration; the outline course is before you, and I will discuss it for the next ten minutes allowed me.

I think we are all very glad that the subject of nature study has assumed some prominence in the schools. Some have urged that children, especially city children, do not come into contact with nature; that there is a lack of knowledge of nature; that city children cannot have the opportunities for studying nature, unless the schools shall take up the subject,—create the subject in the school room. So, while nature study is properly made a feature of each grade, it is not for the purpose of making scientists of children—far from it—but rather to develop the observing powers and yield a store of definite concepts, above all to show the relation of nature to human interests. All nature work should rise into the humanistic; mere learning of facts and scientific names will have little value. Children must love nature and get nature into their souls. Bryant well illustrates the results of this love in the opening lines of Thanatopsis:

> "To him who in the *love* of nature holds
> Communion with her visible forms, she speaks
> A various language. For his gayer hours
> She has a voice of gladness and a smile
> And eloquence of beauty; and she glides
> Into his darker musings with a mild
> And gentle sympathy that steals away
> Their sharpness ere he is aware."

Elementary *science* will not generate this love; proper nature study may.

As to the reading work: I do not think the time has come when we are to throw out books entirely. A great many of them are well graded along the line of the child's advancement, and they furnish a very convenient reading material for children. I think they have their place in school; and so, under the head of reading, the course indicates somewhat how these books should be used. I have called them the ordinary reading books and the corresponding reading books of other series.

Regarding supplementary reading books: In connection with nature study and geography, there are some very good ones and they have their place; but they are to be used largely for information. I believe that children should be taught early to read for information, even though it is a fact that many of these information books lack the literary essence that would make them desirable as regular reading books.

Another department in reading matter should be literature. I have indicated two lines of literature. First, foundation work of myth, fable, and folk-lore; fairy stories are sometimes well up in the higher realms of literature. I should esteem it of very grave importance if a child did not know certain myths, if he did not know certain fables—a great misfortune in subsequent life. These books should be in the course not necessarily for their own merit, not that they are true, not that they are false; but they should go there merely because they are foundational. I think it is a misfortune for a child not to read Robinson Crusoe, or Swinton's Book of Tales, etc. The subjects which are treated therein are subjects which

the child needs to know, in order to understand literature later on. Putting it on this plane—you may call it a low plain—it is important that the child should know these things as foundational work. Second, comes real literature of a higher order, portions of which should be committed to memory.

As to concentration: I believe each of the established school subjects should receive such proper and independent treatment as to develop it in its logical order. Isolation is important in the treatment of these subjects; I believe in that. These subjects are entitled to their legitimate treatment, and to their treatment in logical order. The theory of concentration as applied to all the grades, is in the main rejected; it can have free application in the first grades only. The work of the first primary grade does not take hold of the regular school subjects to any great extent; and the child who is being initiated into school work is being taught some formal knowledge, and can be taught this as well when we are teaching one thing as another. The different subjects that are brought forward in the primary school,—history work, work in numbers, nature work, or work in daily life growing out of something that arises in the school,—with the consideration of all these subjects, the formal subjects can also be treated. Beyond that point I think subjects are entitled to receive their independent treatment.

Regarding correlation I will say: I believe we are all of us aware that it can be carried on to the intent of deadening the school work; it can be carried on until variety is entirely rooted out of the school. I think that Herbart gives the first law of interest to be variety. If everything else is to radiate from one subject, we to a very great extent overload the child with this one idea. I heard a teacher remark in regard to some children who had been having the honey bee as their center of instruction, that the children had gotten so sick of the bee as to say that they never wanted to taste honey again. We should bear in mind that variety is important. There is a freshness in taking up something absolutely new, and this freshness can minister to the life of the child.

Interrelations do not imply strained or forced correlations. When we are treating any subject, it is not the proper thing to be hunting around for fancied relations or very remote relations, in order that we may bring in some other subject. I remember one teacher bringing in the poem of Barbara Frietchie in connection with *corn*, simply because that word occurs in the first line of the poem, "Up from the meadows rich with corn," etc. I think we want to get over an idea that correlation has to deal with any such interrelation as that.

In the arrangement of this course of study, I have attempted to exhibit one phase of correlation. Take the fourth grade in reading, fourth grade in nature study, fourth grade in language, geography, and history, and I think you will see that there is a certain interrelation. In the third grade I have suggested home geography, and in the fourth grade I would use a book.

Let history begin in the first grade, taking up the subject of home and branching out to primitive homes. Possibly, if desirable, the Eskimo child may be brought in there. From this the second grade advances a little to the means of social and business intercourse in general, such as roads, wagons, bridges, etc. The third grade takes still another step to the community, and heroic stories are brought in,—anything that has a moral and stimulates this culture; then the fourth grade takes up

biography, and I have also indicated Michigan history. In all grades, under historical days, historical people may be brought in with interest to the children.

In arithmetic I have followed the old idea very closely. This subject should not depend for its development upon the other subjects that we are treating. I have put in the old-fashioned multiplication table, and want to ask this question. Will children learn the multiplication table without drill upon it? Will they learn the multiplication table because you make arithmetical problems in nature work? No, they will not. How do any of you know that 7 times 8 are 56? You know it because you learned it; you know it as a matter of association; you know it solely because you were drilled upon it. Can the school afford to throw aside this formal drill work—call it formal, if you will? Can they afford to throw this aside and say that in place of it they will depend upon work in these other subjects?

The president's gavel admonishes me that I must close. Let me say in conclusion that, in changing courses of study, it would seem to be good sense to make haste slowly and carefully, and in a spirit of wise conservatism. The graded school course of study should not be abandoned; to do this would tend to disintegrate the graded school system and resolve it into chaos. Evolution, not revolution, is desirable.

Supt. E. L. Briggs of Coldwater:

In this work presented this morning which is before you in outlines, there is so much matter for consideration that it seems almost impossible for one to enter into a fair discussion of it. The two "opposing factions," as they have been called, of pedagogy at the present day, have presented their courses of study and in a sense they discuss one another; for if one does not agree with the presentation upon one side, he finds upon the other side the presentation of what may be called the other school, so that both sides of the question are before you.

Besides these two courses that have been presented, I find there are two other courses in elementary science, one which is before you and was to have been presented by Miss Louise Miller, covering the first four grades of school work, and another which will be presented later by Prof. Sherzer of the Normal School.

For science work we have four outlines for the first four grades, and in all other work two. It would be a very difficult matter for any one, and certainly it is for me, in any way to reconcile all these presentations; and it is not my purpose to do so. It seems to me that one presenting a general course of study for all the schools of the State should be, perhaps, a prophet of the future rather than an annalist of the past. One of these courses, the one last presented, gives the work as it is carried on today in the best schools of our State, a course of study in accordance with the general plan of the State. This is the curriculum upon which we are all working, and on which the schools of Michigan are attaining the success that characterizes them today. The other is a course that is new to many of us in its general plan. This course, as I understand it, is in operation to some extent in the schools of Detroit. It has many suggestions that many of us have not employed in our schools. As to this last course, there seems to be a plan of concentration around certain centers which is ignored entirely or is not worked out in the other. In this course it seems to be the plan to concentrate the work

around typical characters, taking Agoonack and Kablu as typical characters and in a sense concentrating the work about them,—making the other subjects of the school in a measure center themselves around these characters, and, later on, around the institutions they are studying.

It seems to me the time has come—and it was so suggested by our lecture last night—when there must be marked changes in our courses of study. It is a time when the courses are to be modified, and yet to my mind this modification must be gradual. I presume in the years that are immediately before us we shall see marked changes in the work of the schools, and I think it possible that the changes may be along lines that are suggested in these papers; and yet it seems to me that we must move very cautiously into these new features; that radical changes are liable to work disaster; that this course which, under the guidance of Miss Scott and Miss Coffin and others in Detroit, may work effectively, might in the hands of most of us be a failure. The change is too radical for an immediate adoption. As to the characters that are presented, I do not feel sure that they are the ones about which to concentrate. They have been found in the literature of child life, and are interesting to pupils because they present interesting phases of child life; but it seems very questionable whether they are sufficiently real characters of the periods about which they deal to be the characters about which to concentrate the work. My thought is that the characters themselves are merely fiction of Jane Andrews, and are not sufficiently classical to be made the basis of concentration. It seems to me that these courses must come to us as suggestive courses. Probably no one of them can be followed in any particular school, but all of them present excellent material for the teachers of the State; and yet it seems to me that no one of them is more than a suggestive course. The work done in science in the first grades is a limited amount, and this must be determined by the teacher, the condition in which the school is being carried on, and the surroundings of the school; it will devolve upon the teacher and the superintendent to plan the science work in accordance with that which can be done, and perhaps only a limited amount of the work suggested here can be taken in the line of science when the work is not carried on by a specialist in these lines.

Prin. C. B. Hall of Detroit, chairman of the sub-committee on course for grammar schools, was called upon to present the course suggested for these grades, and spoke as follows:

I shall attempt no formal presentation of this report. I was surprised when asked to present this subject, and will attempt a little explanation. The committee met in Ann Arbor in June and divided into sub-committees. I was placed in charge of one of these sub-committees and made my report. I supposed that the committee would be called together, that we should discuss this report together, and so be able to present a well considered course for discussion here. Unfortunately we did not meet until Monday of this week, and I have not seen any of the reports. For this reason I know little more about the report than you do, except the one which I sent to the chairman. It was understood that these reports were to be sent to Dr. Hinsdale, Supt. M. A. Whitney, and Dr. Boone; that they were to correct the reports which were to be presented here. The explanation that I have to give is that, not having any opportunity to discuss these reports, each sub-committee has sent its own and

they are before you for discussion. They will serve as a basis for discussion, but probably the report would not have been the same had all considered them together before presentation.

I hope that the subject will be thoroughly discussed here, taking this report as a basis for discussion; and that we may at last, through the continuance of this committee or a new committee, have a report that we shall be glad to endorse, one which may go out through the State as a guide, so that there may be greater uniformity of work. I see in the report that we have a course for grammar grades which includes reading, spelling, etc.; that we also have a course in mathematics for the grammar grades, and one for United States history. I do not know whether any other reports were made or not, but there certainly were four sub-committees appointed.

I am unable to present any formal report in regard to this, because I have known so little of it. I regard the report as incomplete, because not enough consideration has been given to it. I hope that the subject will receive much discussion, so that we may really have a course which we are willing the State Association shall send out as the consensus of opinion and as worthy of a following.

SUGGESTED COURSE IN LANGUAGE FOR GRAMMAR GRADES.

GRADE FIVE.

I. FOURTH READER.—For general mechanical study; expression; capitalization; punctuation; grammar.

II. MYTHS AND LEGENDS.—The Stories;—to furnish material for oral and written work; to familiarize the pupils with classical reference and to furnish him with material for classical allusions; to furnish ample field for the play of the imagination so that he may put in the high-lights of oral and written language.

III. LITERATURE.—Hawthorne's *Wonder Book* and *Tanglewood Tales*;—to furnish material for consecutive thought; to cultivate *style* by dwelling upon and absorbing the language and beauty of so rich an author.

IV. HISTORY.—"*Ten Boys on the Road*," (Andrews);—to furnish abundant material for oral and written composition.

V. NATURE STUDY.—*Sea Side and Way Side*, No. 4, (Wright);—to furnish the pupil with a brief survey of the world and its furnishings—its animal and plant life and its mineral adornments, information very useful to one who writes or speaks.

VI. GEOGRAPHY AND TRAVEL.—"*Modern Europe*;"—to familiarize the pupil with noted paintings, sculptures, cathedrals, towers, dress, and customs of peoples, beautiful scenery of mountain, lake, and river, etc.,—material which the pupil as speaker or writer will frequently have occasion to use.

VII. GRAMMAR.—As needed to test the accuracy of the work.

GRADE SIX.

I. FIFTH READER. See grade five and continue.

II. MYTHS AND LEGENDS.—The stories; their nature-interpretation and use in literature.

III. LITERATURE.—*Kingsley's Greek Heroes*, or *Gods and Heroes;* for continuous thought studies and pure style work in language.

IV. HISTORY.—"*Great Lives*;" to familiarize the pupil with the chief characters in history and their doings.

V. NATURE STUDY.—Burroughs "*Birds and Bees*;" to bring the thought and style in touch with nature.

VI. GEOGRAPHY AND TRAVEL.—Rupert's *Geographical Reader*; to teach the graphic description of the scenery of our world home.

VII. GRAMMAR.—As needed to aid and test the work.

GRADE SEVEN.

I. MYTHS.—Their ethical and spiritual interpretation and their more intimate connection in figure and fact with the works of great writers.

II. LITERATURE.—The *Iliad* and *Odyssey*, (Brooks or Church), Kalevala, Hiawatha, Evangeline, Enoch Arden, etc.; to develop the continuous thought idea, and to give the pupil the idea of completeness and unity of theme. This must be applied in the pupil's oral and written language work.

III. HISTORY.—*Fifteen Decisive Battles*, (Creasy); to show the world's history as a whole, bound together by the golden-thread,—the Struggle for Freedom.

SCIENCE AND FACT.—*Information Reader*, No. 3; to furnish the mind with ample material in fact, from the commercial and industrial world, to be used in orations and compositions.

V. GRAMMAR.—As in preceding grades.

GRADE EIGHT.

I. MYTHS FROM ALL LANDS.—Reviewed to keep fresh for literary reference; their nature and ethical interpretation, and their use in speech and literary work.

II. LITERATURE.—Extracts from classical works, "Lady of the Lake," "Vision of Sir Launfal." Short standard poems from authors.

III. HISTORY.—United States History. The Story of Liberty, (Coffin).

IV. GRAMMAR —With a good text-book and in connection with the above work and following it as a guide to correct work.

V. LATIN.—Through the entire year as an optional study.

SUGGESTIONS FOR ALL GRADES.

1. Oral Language should be made very prominent, giving attention to continuous discourse. The pupil should recite, not for his teacher alone, but for his class, so impressing his personality upon his class as to hold their attention and interest. Correct form, expression, manner, pronunciation, clearness, and force should receive careful attention.

2. Give the child much to read from the standard authors, and he will gradually grow in his use of pure language and good style.

3. While memory gems are worthy of attention, care should be given to complete and quite lengthy selections, that the work may not be epigrammatic or "scrappy." Power should be given a pupil to think and speak continuously.

4. Grammar should follow, not precede, language work. The pupil should be taught the science of language as he needs it—as his appetite craves it. It should permeate the entire course in language.

5. When the pupil is *full* of a subject and can express himself well upon it in oral language, the pen may be wisely put in his hand to write; and great care should be given to the mechanical work, capitalization, punctuation, paragraphing, form, style, and, if possible, illustrating the essay.

6. Latin may be made an optional study in the last grade of the grammar school.

SUGGESTED COURSE IN MATHEMATICS FOR GRAMMAR GRADES.

FIFTH GRADE.

ARITHMETIC.—Five recitations a week.

1. Such review of the important parts of the work of the preceding grade as may be deemed desirable.

2. Factoring, divisors and multiples, common and decimal fractions, mensuration of simple forms of surface and solids, denominate numbers.

3. Intellectual arithmetic.

SIXTH GRADE.

ARITHMETIC.—Five recitations a week.

1. A sharp review drill in fractions. A thorough study of the metric system of measures and weights. Mensuration extended.
2. Elements of percentage with easy applications.
3. Intellectual arithmetic continued.

SEVENTH GRADE.

I. ARITHMETIC.—Four recitations a week.

1. Review of percentage with extension to higher applications in business. Business papers and forms. Mensuration, common and metric system, and intellectual arithmetic continued.
2. Ratio and simple proportion with applications.
3. Involution and square root.

II. CONCRETE GEOMETRY.—One recitation a week.

EIGHTH GRADE.

I. ARITHMETIC.—One recitation a week.

1. A general review with special reference to application in practical affairs.
2. Elements of bookkeeping.

II. CONCRETE GEOMETRY.—Two recitations a week.

1. Including construction of drawings to scale, models with specifications of measurements, and materials and applications in mensuration.

III. ELEMENTS OF ALGEBRA.—Two recitations a week.

1. Covering the use of the algebraic notation in addition, subtraction, multiplication and division; applications in factoring, fractions, and involution; solution of simple equations with numerous applications in arithmetic and geometry.

SUGGESTED COURSE IN U. S. HISTORY FOR GRAMMAR GRADES.

FIFTH GRADE.

Stories of American history, and the learning of patriotic poems and songs, accompanied with suitable talks by the teacher.

SIXTH GRADE.

A first book in U. S. History to be read, together with biographies of eminent leaders in the great events in American history, as Washington, Franklin, Lincoln.

SEVENTH GRADE.

The study of U. S. history with special reference to its discovery, settlement, increase in extent and population, and the development of its resources.

EIGHTH GRADE.

A brief history of the great political parties of the United States in connection with the study of its constitutional government.

In the study of political geography, history should be a subordinate topic, thus instituting a comparison of the character and progress of people under different forms of government.

In presenting a "Suggested Course of Study in Elementary Science" for the entire eight grades, based upon a practical scheme of concentration and correlation, Prof. Sherzer of Ypsilanti apologized for trespassing upon the ground of the primary committee, saying as follows:

"Owing to the wide range of mental capacity shown by children from six to fourteen years of age, the eight grades were divided into three divisions, the first three constituting, the primary, the next three the intermediate, and the seventh and eighth the grammar. For the primary grades the work should be *concentrated* about Nature Study (used broadly to cover earth, air, and sky) in the sense that the other subjects should grow out of and be related to it. Both pedagogy and child psychology point directly to this center rather than to language, literature, or history. The education of the child must begin by presenting *things* to his senses. In the intermediate grades the entire work of the school is to be naturally correlated as far as is practicable, those portions of the various subjects being selected which will give you this desired relation. It is emphatically maintained that the strictly logical sequence must give way, when necessary, to the psychological. For instance, in zoology the amœba logically comes first, but instead of this form we must select those which connect the child with his home. In the grammar grades it has been found impracticable to secure much in the way of correlation, and the principle was here dropped. By intelligent correlation we secure a deeper interest in the work of the school, and any failures must be ascribed to faulty presentation or forced relation. Some claim that the interest is deadened by continually harping upon the same subject; that the child must have variety. If this variety, absolutely demanded by the child, cannot be secured in carrying out such a course, then this is a fatal objection; but if *variety* cannot be found in the *earth*, *air*, and *sky*, where is it to be looked for? By correlation we secure economy of mental energy, in that it is easier for the mind to pass to a related subject than to an unrelated one. In view of the increased interest and economy of mental energy, there is a saving of time. It has been demonstrated in the schools of Paris that, with improved methods, seven years' work may be done in less than three and one-half. Correlated study leads to correlated habits of thought, so that the individual is given complete control of his faculties. The cerebral centers are knit together so as to secure the harmonious action of the brain; the *short cuts* established in the 'association fibers' beneath the cortex become highways of thought; and the mind views an object, or a phenomenon, in all its present, past, and future relations and inter-relations. The brilliant *after* thoughts, which so exasperate us, arise in time to be used; in the face of temptation we see the sin from all sides and in all its serious consequences. It has been urged against the application of the doctrine in the grades, that it properly belongs to the graduate schools of our universities, where the mind is able to make its own correlations. True is it that the child is unable to bring together and properly relate his own observations and experiences, but this should be done for him by the cultivated mind of his teacher. Gradually the child grows out of this stage of dependence upon his teacher; slowly acquires this power for himself which culminates finally in the finishing courses of the university."

SUGGESTED ELEMENTARY SCIENCE COURSE.

In attempting to map out a graded course of study for grammar grades, it was found impossible to give anything in detail without knowing the nature of the work to be done in the first four primary years. So much did it seem like asking an architect to plan a second story, knowing nothing of the first, that the attempt ended only in despair. With no meeting of the sub-committee since its organization in June, it seems wisest to present a skeleton course of science for all grades, based upon the principles which, in our present best judgment, should be operative. With such, or similar work as a basis, the science of the last four years of the elementary school is here presented for criticism.

Upon a separate page there is proposed a scheme for an elementary course, with sufficient explanation to render it intelligible. It is confidently believed that concentration and correlation, as used in this scheme, have such a sound psychological basis in the education of the child, that it is simply a question of time until their importance is fully appreciated. Over-zealous and mistaken advocates of the doctrine have not unfrequently been led into error, which, however, cannot justly be charged against the doctrine itself.

When the value of the principle of concentration for the three primary grades is admitted, then comes the question as to which group of subjects shall form the center. All agree that this center must be determined by the very nature of the child's mind, but all will not agree when one attempts to make this determination. From the law of his mental development the child is most deeply interested in natural objects and natural phenomena. He is more deeply concerned with what immediately surrounds him, rather than that which is remote in space or time. His mind is empty at first and can be stored with definite concepts only through the senses. His studies must be in the main PRESENTATIVE. Besides perfectly meeting these requirements nature study supplies data first hand, secures exercise and recreation when properly pursued, and is in a sense utilitarian.

Based upon these general principles the following course in science is proposed in skeleton form. The most that is hoped for it is that it may serve as a working basis to be modified and perfected by the combined experience of the teachers of the State. It is believed to remedy the SCRAPPINESS of many elementary courses in nature study, to obviate the endless repetition of the same topic in different grades—so deadening to interest—and to secure a fairly complete treatment of each branch of science. The amount of ground to be covered under each topic, its method of presentation, and its relation to other subjects of the curriculum, are weighty matters for future consideration. The work proposed, it is well to note, may be given as a separate science course in case, for any reason, it is not desired to apply the doctrine of concentration and correlation.

The topics suggested for each grade are roughly arranged as they would receive attention during the school year, except for the geography, astronomy, and meteorology, to the last two of which from five to fifteen minutes daily may profitably be devoted.

FIRST GRADE.

Fall thought: preparation for winter through protection, by animals, plants, man.
Winter thought: rest of organic world.
Spring thought: Nature's awakening.
Cat, dog, sheep.
Larvae of butterflies and moths.
Clothing and shelter, weaving, building, etc.
Horse chestnut tree observed during year and studied first with reference to protection of parts.
Evergreen.
Snow and its uses.
Skin, hair, and nails; their use and care.
Seeds and their germination.
Opening of buds, flowers, growth of grass, etc.
Butterflies and moths.
Cow.
Simple observations upon sun, moon, winds, clouds, rain, snow, dew, frost, etc.

SECOND GRADE.

Fall thought: preparation for winter through protection and storage of food.
Winter thought: use of food by plants, animals, and man.
Spring thought: reanimation of Nature.
Squirrel and rabbit.
Oak observed through year with reference first to protection and storage.
Hickory, garden vegetables.
Identification of starch in foods.
Milling, quartz.
Nourishment of body, hygiene of eating.
Prehension of food; teeth and their care.
Use of stored food by animals, plants, and man.
Culture fluid experiments.
Germination with reference to food supply.
Birds; their return.
Soft and hard maple.
Simple observations upon sun, moon, morning and evening, star, clouds, wind, rain, snow, etc.
Individual records.

THIRD GRADE.

Fall thought: gathering and storing; thrift.
Winter thought: preparation for winter through heat.
Spring thought: mutual dependence.
Grasshopper and bee.
School bank.
Cress family with function of flowers.
Home geography, directions and distances.
Carbon in fuel and food.
Heat, combustion, decay.
Evaporation, condensation, distillation.
Expansion of liquids and gases, movements of air.
Respiration in plants, insects, man.
Bee, ant, butterfly, and moth.
Cross fertilization in pulse family.
General observation throughout the year upon sun, moon, and stars. Individual records of weather, use of thermometer, direction of wind.

FOURTH GRADE.

State geography and globe during year.
Oak, hickory, maple, and pine, with especial reference to distribution over state.
Study of walnut.
Fresh water mussel, oyster.
Limestone and its uses. Carbon dioxide.
Sandstone, gypsum, coal, iron ores, and salt.
Magnetism and compass.
Solution and crystallization. Snow.
Bones and joints.
Identification of trees of vicinity.
Snail.
Meteorology as in preceding grade. Shadow stick and sun-dial.

FIFTH GRADE.

Geography of United States and North America.
Crayfish, lobster, and crab.
Self sustaining aquarium.
Algæ, mushrooms, moss, lichens, etc.
Metals and ores, their uses and reduction.
Muscles and locomotion.
Levers, pulleys, and inclined plane.
Convection, currents, pump, siphon, traps, etc.
Erosion and sedimentation.
Fish, fern.
Weather observations with graphic charts.
Measurements of rain-fall and snow.

SIXTH GRADE.

General survey of continents.
Frog.
General properties of minerals.
Common rock-forming minerals. Soil making.
Physiology of frog and man compared.
Osmosis.
Development of frog and toad from eggs.
Conditions of germination.
Plant physiology.
Self sustaining aquarium.
Weather observations as in preceding grade.
Few prominent constellations.

SEVENTH GRADE.

Europe and her dependencies.
Birds with simple classification.
Trees reviewed and classified.
Fruits and seed distribution.
Composition, structure, and history of crystalline rocks.
Heat and steam.
Anatomy of bird and man compared.
Bird study continued.
Systematic study of weeds and flowers.
Systematic observations upon weather with monthly and yearly graphic charts. Constellations added.

EIGHTH GRADE.

Commercial geography of United States.
Common cryptogams of neighborhood.
Yeast, fermentation and disease germs.
Study of soils, capillarity.
Frictional electricity, sound, light.
Elementary text on physiology.
Properties of air.
Systematic observations upon the weather with graphic charts. Reading of barometer, study of daily weather map, and predictions of weather.

W. H. SHERZER.

Ypsilanti, Mich., December 20, 1895.

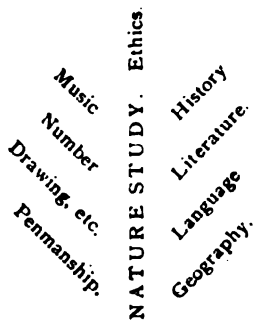
PROPOSED SCHEME FOR ELEMENTARY COURSE.

PRIMARY GRADES.

(1st, 2d, 3d.)

Studies presentative.

Science work, observation mainly.



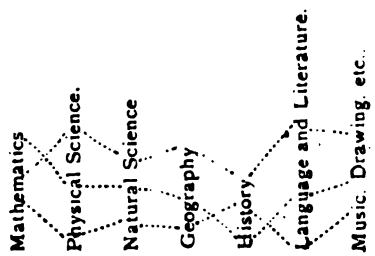
CONCENTRATION about Nature study in its broadest sense, including the study of earth, air, and sky. Other subjects to grow out of and be related to it, but each assuming its own characteristics and receiving due proportion of time.

INTERMEDIATE GRADES.

(4th, 5th, 6th.)

Studies presentative and representative.

Observation and experiment.



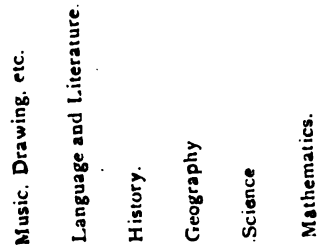
CORRELATION of studies; those portions of each being selected which are naturally related. The strictly logical sequence in subjects to be sacrificed when necessary, for the psychological or to secure the desired interrelation. This idea is shown graphically by the dotted lines, their actual position, however, having no significance.

GRAMMAR GRADES.

(7th, 8th.)

Studies presentative, representative, and elaborative.

Observation, experiment, generalization.



Each subject to be given equal rank, taught for its own sake and without especial reference to others. Sequence that is considered vital as a preparation for life work, or for the high school, to be retained throughout.

Dr. R. G. Boone of Ypsilanti:

No one regrets more than I, being a member of the original committee to which it was expected these sub-committees would report, that we have not been able to have these reports in hand and do something towards discussing them. I had hoped very much from this, and yet I do not know that it is altogether unfortunate that these disconnected reports are here presented. There is much value in your seeing what we must have seen, and perhaps would have seen alone. There is much value in your seeing as well how diverse are the interests that are involved. I am glad to have all these reports in the primary work offered. It would have been a good thing had we had separate reports offered of our grammar course as well, for the reason that certain of the principles that apply —as has just been mentioned by the last speaker—to primary work, do not so well apply to the grammar work.

The last speaker was correct in saying that the sequence of work in the earlier years must be psychological: the sequence of work in the later years can be fairly logical; that is, it may in the earlier years be determined by the way in which the parts of the subject shall follow one another, while in the later years of the elementary school course it would be largely determined by the relation of the subject matter. One thing which interests me far more in connection with this course of study than the question of concentration and correlation, is that of the sequence of parts. With reference to the grammar course, it is true that, even before the question of the sequence of the subject matter, comes that of the matter itself. What shall come into the course? What are the topics included, the concepts which are fundamental? What are these primary concepts which every child must be supposed to have had given him? This must be determined, even before we can question what is the sequence of these topics or how they are to be related with the other topics.

It seems to me quite fundamental that we shall as teachers understand what determines the trend in this or that or the other subject matter. I think we ought all to come to a pretty fair agreement as to what is typical in these several branches. In physics, chemistry, botany, zoology, what are the fundamental concepts which underlie all of our teaching; in geography what are the things which lie at the foundation; in the study of geology what are the ideas about which all the other ideas cluster? We have not answered that question. I do not know whether modern pedagogy has in any way answered that question. A few days ago in conversation with Professor Strong, he made this statement: he felt satisfied that, upon the fingers of his two hands, could be named all the really fundamental concepts of physics, and that, whether you teach physics in a thoroughly primary way to children under ten or twelve years of age, or whether you teach physics in the grammar grades, high school, or university, you are always working upon one or another or several or all of these basic concepts in physics. You can study them in an elementary way or in a universal way; you can study them as the child comes up to them without any apparatus or machinery, or as the man comes up to them. You are working upon these basic concepts. These are the fundamental things. If we can determine what these are, it will greatly simplify our course of study. If you can find what is a typical concept, you may come up to that concept in one way, I may come up to it in another;

but that will be the one thing which is the objective point of our work in geography, and we shall both be right. We shall work upon something that is really fundamental.

I cannot say a better thing than what I have already said, that we shall have to learn ultimately that it is not so important *what* we study, but in what *way* we study—whether we study type-forms. That will largely settle the question of what we mean by correlation. Correlation does not mean that, wherever you do find a subject which throws out lines of interest and connection, those lines shall be followed to the extent of the child's experience. It does not mean at all that every time you study history, you shall study geography and reading; but when history has geographical relations, you shall continue with your work in history until you have worked out those relations. When you are teaching geography, you shall follow out those historical connections as far as the child's experience justifies and requires. If you can, in your course of study, introduce only those real type-forms of knowledge, type-forms of interest, how much easier is this relating of other subjects to the one subject. Correlation comes in easily around type-forms. Suppose you are studying the American history of the civil war period, and you take a private who did just as good service in the history of the civil war as a general; you will not be able with that one private's life and his services in the war, to relate as great facts in the war as you would if you took a great general, putting a typical character into the work, gathering about him large groups of experiences relating to governmental experiences on the one side and social on the other; and you will be able to gain by your study far more of importance in historical facts by taking a general's experience than you would by taking the life of a private. That is why I should take the general's life in place of the private's. It means that, whatever you are studying, you shall select typical facts. The sequence of the topics, I have said, seems to me to be the important question of correlation. The essential fact in correlation is that all that is taught and the experiences incident to that teaching, shall be controlled in such a way that the result shall be a unified result,—that it shall not be disconnected; but whatever is done, shall be done in such a way as to lead to an integrated result. I do not believe that it is so important for us to recognize that there is some absolute sequence for any of these topics, as that we follow out some line of sequence; and the proper coördination of these lines, seems to me the important question.

I should like to say a word about the difference between concentration and correlation. They do not seem to be the same thing. There may be a great deal of correlation without concentration. Concentration is not a fundamental or important process in our teaching; correlation is. Correlation seems to me to be quite important. It ought to be this kind of correlation, that you shall teach the subject with which you are dealing so that all the legitimate relations to the incidents shall be recognized, and not that you teach anything that cannot be related to something else.

Prin. W. A. Greeson of Grand Rapids, chairman of the sub-committee on High School Course, introduced their report with a short explanation regarding the two meetings held by this section in June and November the result of their labors being the following:

REPORT OF THE HIGH SCHOOL SECTION ON COURSE OF STUDY.

At a meeting of the High School Section of the Joint Committee on the preparation of a Course of Study for Primary and Secondary Schools, at Ann Arbor, June 28, 1895, F. C. Newcombe was named as secretary, and the following resolutions were passed as a basis for further action:

1. That this committee proceed upon the supposition that mathematics, as outlined in the report of the committee of ten, be given in the 8th grade of the grammar school.
2. That Latin and German be recommended for the 8th grade as alternates with English grammar.
3. That this committee attempt to write a unitary course of study for high schools, giving first required studies for all pupils, and then additional studies for various courses.
4. That the maximum periods for the first two years in the high school be sixteen and for the last two years eighteen.

The committee then proceeded to lay down a scheme of required work for all pupils, upon the following statement of principles:

1. That one and one-half years in algebra, and one year in geometry, be the time requirement in mathematics.
2. That two years of foreign language be required in the eleventh and twelfth grades.*
3. That one year of general history be required in the tenth grade.
4. That for English, the plan recommended in the report of the Committee of Ten be adopted.
5. That the science requirement of the University of Michigan be adopted.
6. That physics be placed in the twelfth grade.
7. That botany be placed in the second semester of the ninth grade.

At an adjourned meeting of the High School Section of the Joint Committee on the Preparation of a Course of Study for Primary and Secondary Schools, at Ann Arbor, November 29th, 1895.

The committee decided to report the course for high schools in two forms: first, giving the total amount of each study, but not distributing the study in the course; second, distributing the studies through the four years.

The results of the work of the committee are given in the two tables appended:

After the preparation of these tables and the direction that they be sent to the chairman of the committee of the State Teachers' Association, the committee adjourned *sine die.*

F. C. NEWCOMBE,
Secretary.

Table Showing Amount of Work Recommended for High Schools, but Undistributed.

Required studies for all courses.		Additional Studies for—							
		Classical course.		Latin-Science Course.		Scientific Course.		English Course.	
English	12	Latin	20	Latin	20	For'gn Lang.	20	Eng. Lit.	5
Gen. Hist.	5	Greek	10	Opt. Study	1½	U. S. Hist. & Civ. Gov't	5	Eng. Hist.	5
Algebra	7½	Opt. Study	1½	Fren. Ger.	10	Chemistry	5	U. S. Hist.	5
Geometry	5					Opt. Study	1½	Opt. Study	1½
Botany	2½							Arith. and B'k-keeping	2½
Physics	5							Chemistry	5
								Lab. Scien.	5
								Physiology	2½
Totals	37		31½		31½		31½		31½

The figures after each subject indicate the number of periods. The term "period" stands for one recitation a week for a school year; hence, "General History 5" indicates a year for that study, with recitations 5 times a week.

*At a subsequent meeting this resolution was reconsidered and it was voted to drop foreign language as one of the requirements for all grades.

Table Showing Distribution of Work Recommended for High Schools.

Grade.	Semester.	Required Work for All Courses.	Additional studies for—			
			Classical Course.	Latin-Science Course.	Scientific Course.	English Course.
9th	1st	English Grammar, 4.* Algebra, 4.	Latin, 5. Optional Study, 3.	Latin, 5. Optional Study, 3.	Foreign Language, 5. Optional Study, 3.	Physiology, 5. Optional Study, 3.
	2d	Amer. Masterpieces and Composition, 3. Algebra, 3. Botany, 5 (As Lab. science).	Latin, 5.	Latin, 5.	Foreign Language, 5.	Arithmetic and Book-keeping, 5.
10th	1st	Amer. Masterpieces and Composition, 3. General History, 5. Algebra, 3.	Latin, 5.	Latin, 5.	Foreign Language, 5.	Optional Lab. Science, 5.
	2d	Amer. Masterpieces and Composition, 2. General History, 5. Algebra, 2. Geometry, 2.	Latin, 5.	Latin, 5.	Foreign Language, 5.	Optional Lab. Science, 5.
11th	1st	Eng. Masterpieces and Composition, 3. Algebra, 2. Geometry, 3.	Latin, 5. Greek, 5.	Latin, 5. French or Ger., 5.	Foreign Language, 5. Chemistry, 5.	English History, 5. Chemistry, 5.
	2d	Eng. Masterpieces and Composition, 3. Algebra, 1. Geometry, 4.	Latin, 5. Greek, 5.	Latin, 5. French or Ger., 5.	Foreign Language, 5. Chemistry, 5.	English History, 5. Chemistry, 5.
12th	1st	Eng. Masterpieces and Composition, 3. Physics, 5.	Latin, 5. Greek, 5.	Latin, 5. French or Ger., 5.	Foreign Language, 5. U. S. Hist. and Civ. Gov't, 5.	English Literature, 5. U. S. History, 5.
	2d	Eng. Masterpieces and Composition, 3. Physics, 5.	Latin, 5. Greek, 5.	Latin, 5. French or Ger., 5.	Foreign Language, 5. U. S. Hist. and Civ. Gov't, 5.	English Literature, 5. U. S. History, 5.

*The number following the study indicates the number of recitations in that study each week. It will be seen that the number of recitations each week is 16 for the first three semesters, 17 for the fourth, and 18 for the last four semesters.

In presenting the foregoing outline Prin. Greeson commented on the foreign language requirement as follows:

At the meeting in November the committee, after considerable discussion, moved to adopt the foreign language requirement for all courses. I think there was no difference of opinion among the members of the committee as to the value of the study of foreign languages, and that it would be desirable if all the pupils in the high schools of Michigan could be induced to study some foreign language for at least four years. But it seemed to a majority of the committee at the second meeting that, whatever we might say about it, the high schools of Michigan, for the present at least, will insist upon some course of study in which a foreign language is not required, and that it would be a point of wisdom in us to provide a course of study in which no foreign language is required. That is called the English course. You will see in one of the tables of the report, which I think each of you have, the tabulated form of the courses of study. We have the work for all courses. In the second part we have the additional work distributed in the four courses known as Classical, Latin-Scientific, Scientific, and English.

I do not think it will be necessary for me to discuss this arrangement of the work. It is before you, and I should like to hear an expression of opinion as to the wisdom of the arrangement.

Dr. Hinsdale of Ann Arbor:

Mr. President and Members of the Association:—I hardly think I am the fittest person to occupy the major part of the time that is to be devoted to the discussion of this subject; at all events, I do not so seem to myself. One reason why I entertain that view is, that we have been discussing (coming at the subject from another angle) various questions that are involved in this report at the State University; and that leads me to remark that, in the course of these discussions, there has been a general anxiety on the part of members of the faculty, to find out the conviction, experience, and feeling of the high school men of the State, particularly in regard to these topics. I therefore would much prefer myself to listen to high school principals, and to the experiences of high school teachers and school superintendents, in regard to various phases of this subject. I shall not, therefore, attempt to make any general discussion of the scheme that has been presented.

You have all listened to the statement that has been made by the chairman that the committee at its earlier meeting, adopted the resolution that two years of foreign language should be required in the 11th and 12th grades, and to his further statement regarding its rescinding at a later meeting of the committee, when the membership had somewhat changed, and when, perhaps, there had been a clearer analysis of the subject. So far as appears from Mr. Greeson's statement, the former resolution was recommended on what may be called grounds of expediency, upon prudential grounds rather than on educational or pedagogical grounds proper. I do not wish to imply that it is not entirely proper to discuss this phase of the subject; but I wish, if you please, before this subject passes out of the horizon of the State Teachers' Association, that at some time and place we may have some thorough-going discussion of the topic as to whether two years, say, of foreign language, or four years of foreign language, is desirable in the secondary schools of the State. I may be misinformed, but think I am not, in saying that you will travel far and wide in Ger-

many before you will find a secondary school in which no language is taught but German. I make the same statement in relation to England. I presume I might make the same statement in relation to Italy, although I do not feel quite so sure. Now of course the German teachers discuss the subject, not so much from the standpoint of expediency, as upon pedagogical grounds. That would argue, I think, and with no little force, that the filling out or rounding up of what may be properly called a secondary school education, demands that there shall be the study of some language other than the study of English. Now I am not going to discuss that point farther than may be implied, perhaps, in what I have said. I presume that my opinion would turn somewhat upon the judgment and conviction and opinion of those educators in the State who are most actively engaged in this department of work. I hope that we may have, before it passes out of the purview of the Association, some serious discussion of the question, not upon grounds of expediency, but upon proper pedagogical or educational grounds, whether the earlier resolution was sound or unsound.

Now, there is only one other point, so far as this report is concerned, to which I wish to direct attention. I am not going to state my own view so much as I am going to do another thing. You will observe that the committee have adopted the recent conclusion of the faculty at Ann Arbor with regard to science, so far as the secondary school courses are concerned. Undoubtedly it is known to a majority of this Association that we have legislated along some new lines in that direction, although the new legislation has not as yet taken effect. I should be very glad if there might be some discussion of the question whether we have reduced the number of required sciences below where we ought to have left it. I should be glad to hear whether it is desirable to demand so much chemistry as we propose in the future to demand. That question should be discussed on the grounds of expediency and grounds of educational prudence; but I hope, when we come to the discussion of it, that the pedagogical aspects or bearings of the subject may not be left out of the account. I have put my finger down upon the two points in the report upon which I wish to focalize your thought, and I dismiss them both with saying once more, in order that the force of my thought may not be lost, that before we finally leave the subject, I hope there may be some general discussion which shall enable us to focalize the opinion of the educators of the State in regard to these matters.

I wish to say now one or two things in regard to some matters about which we have heard a good deal this morning. I am impressed more and more, the older I grow, that the various discussions to which I listen, to a very great extent are discussions about words and meanings, and that, after all, the thing that is involved in these discussions is not so much an absolute idea, as it is the idea of relativity. Now, to be a little more definite, if one were to make up his mind as to what has been published and said in the course of the last few years in regard to the matter of concentration, coördination, and correlation, he would conclude (although these words must have been in the dictionary as long ago as when I was a young man or boy) that the ideas were certainly not then in the educational world or in school. I wish to declare, sir, if you please, that to a certain extent that is a very erroneous and mistaken view. Have not teachers of history always been correlating other subjects with history? Is it not an old saying that the two eyes of history are geogra-

phy and chronology? What thought is suggested except the very thought of correlation? Possibly in the old regime (and this is my own opinion), these matters did not stand out in our thoughts with the distinctness that was desirable. Possibly we did not lay the emphasis upon concentration, correlation, and coördination that we ought. I have said that is my opinion. When we come together in these assemblies for the purpose of discussing these subjects, the opinions expressed are very largely opinions as to the distribution of emphasis. It is not that this man proposes to teach all subjects under the name or guise of one. No man who has good sense proposes to overlook concentration and correlation, and no man who has any sense at all proposes to teach all subjects in the name of one. It is simply a question of the distribution of empahsis. You may say that there is not very much in that, that there is nothing in that. This leads me to the further remark that the new thoughts about concentration and correlation are not such absolutely novel things as many of our friends suppose. Grant that we have not discussed these matters as we ought to have done in the years that have gone; grant, if you will, that we are going to put our schools upon a thoroughly improved basis by a more radical discussion of those subjects so far as I have outlined it in the remarks I have made,—that is not going to change the aspect.

Now, if I had three minutes more, I might say something about the issue that has been sprung as to the relation or correlation of what have here been called the psychological and logical points of view, but I will not take up that subject. If I have somewhat departed from the subject that was immediately before us, I must plead as my excuse that the others have done the same thing.

At this point considerable laughter was evoked over a little passage at arms between Prof. Putnam and Harriet Marsh, when the former tried to elicit an admission that the final point had really been overlooked in the discussions; viz., that the evolution of the child is not an evolution of material with which we have to deal, but an evolution of modes of dealing with things. But with true woman's wit, Miss Marsh parried all his questions by asking another.

Supt. Hull suggested that one feature of the question which had not been discussed was whether the committee should be continued another year, and he therefore offered the following:

Resolved, that the large amount of work done by the Committee on a Model Course of Study is a source of gratification to this Association and that, as the report made is considered as partial and tentative, it is the desire of the Association that the committee, as it stands, be continued another year.

Hereupon the following discussion arose:

Dr. Hinsdale.—I would like to suggest an additional feature, if I may in a sentence or two. Suppose that Mr. Hull's resolution is adopted, and the committee is continued. Is it proposed that the subject shall be brought before the State Association in a perfected form so far as the committee of ten are able to give it such form, or is it supposed that it shall be brought before the association in further discussion, or that the committee, if it is able to agree upon the report, shall agree and print it?

A motion by Commissioner McClure to make the informal vote formal was unanimously passed and Supt. Hoyt declared elected.

Commissioner McClure then presented the report of the Committee on Nominations as follows:

Supt. E. L. Briggs of Coldwater, 1st vice president.
Supt. J. A. Stewart of Bay City, 2d vice president.
Supt. J. D. Schiller of Niles, corresponding secretary.
Prin. J. W. Kennedy of Detroit, railroad secretary.
Supt. H. T. Blodgett of Ludington, treasurer.
Executive Committee.—Supt. G. W. Walker of Adrian; Commissioner Flora Beadle of Hastings; Prof. Delos Fall of Albion.
For member Board of Pupils' Reading Circle—D. A. Hammond of Ann Arbor.
To fill vacancy on Executive Committee (caused by Supt. Hoyt's election as president), Supt. H. R. Pattengill.

A motion by Pres. Fiske to accept the report was adopted, when there arose an animated discussion over an alleged violation of certain constitutional provisions regarding the make-up of executive committee, and the report was held over until Saturday, in order to decide as to its being sufficiently in accord with the spirit of the constitution, at which time Pres. Thompson announced that, after careful deliberation, it was decided that the report of the Committee on Nominations met all the requirements of the constitution and would therefore stand approved.

A motion being made to appoint a committee on revision of the constitution, discovered the fact that such a committee, consisting of Supt. Grawn, Prof. Gurney, and Supt. Hathaway, was last year appointed but had as yet made no report; and it was therefore voted to continue said committee with instructions to present their report at the next meeting.

Adjournment.

FRIDAY, P. M.

After dinner the Capitol corridors were filled with throngs hurrying to and fro in search of the various rooms in which were held the five different sections, distributed as follows:—College Section in Senate committee room; High School Section in Representative Hall; Primary Section in Senate Chamber; Mathematical Section in office of Superintendent of Public Instruction: Commissioners' Section in Representative committee room.

The work of these committees will next year be supplemented by still another section, the secretary of which made the following report:

ORGANIZATION OF MUSIC SECTION.

The Music Section of the M. S. T. A. was organized on Friday, December 27, at 11 a. m. Mrs. Emma A. Thomas was appointed chairman *pro tem*, and Miss Florence Marsh secretary. The officers for the

one who, on the other hand, has had much to do with the work of this Association. I wish to present the name of Prof. J. R. Miller, of Big Rapids, and I trust he will receive a vote that will prove to him that we appreciate long service and true worth.

Supt. M. A. Whitney.—I do not want to be disloyal to the superintendents of Michigan in any way; but, in looking over the list of the presidents of this Association, I find that for six years a city superintendent has occupied that position, and I ask myself the question, is it not fair that this year we should go elsewhere for a president. I wish to put in nomination a man who is well known and who is usually in attendance at these meetings, Prof. D'Ooge of the State Normal.

Supt. Catton.—I should be very glad to second the nomination of Mr. Hull. I believe that some attention ought to be paid by the teachers and superintendents present to long service in our own State.

Messrs. Loomis, McKone, Sage, and Parker were appointed as tellers, and Supt. Pattengill asked permission to address the meeting while the balloting was in progress, for the purpose of calling the attention to the National Educational Association, which convenes at Buffalo next summer. He spoke of the numerous points of interest not far from this thriving city—Niagara, the Chautauqua Assembly Grounds, the Adirondacks, and the Hudson River—and said the city was so centrally located that we may look for a mighty aggregation, concentration, and correlation of pedagogues. At Denver it was whispered that Michigan never sent a representation commensurate with her educational importance, and it was doubtful if the allegation could be denied; that the ladies, with their lower wages, generally outnumbered the gentlemen, three to one; that the young superintendents at least should form the habit of attending these great educational gatherings, and he trusted our State might rally a sufficient number at Buffalo to exert our rightful influence in the nationa educational councils, and show that Michigan is wide awake to the needs of education.

Prof. Fall followed with an explanation regarding the pamphlets published by the State Board of Health on four of the leading causes of death in this country, which Dr. Baker had caused to be bound together and prepared for distribution among all teachers present, thus furnishing each with a text book, as it were, on sanitary science. The study of these diseases changes our methods of teaching hygiene. Heretofore we have taught more concerning the ills that cause discomfort rather than death; now we teach prevention of the diseases causing death, and the Board of Health is gratified by the zeal with which teachers are taking up the study.

The announcement of an M. A. C. reunion at the Congregational church at 6.15 p. m., and motions to send greetings to the teachers in session at Boise City, Idaho, Bangor, Me., Milwaukee, Wis., and Indianapolis, Ind., occupied the remaining time during the balloting, and then the secretary announced the result as follows: 221 votes cast, 111 necessary to a choice; of which 130 were for C. O. Hoyt.

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ensuing year were elected as follows: president, Mrs. Emma A. Thomas, Detroit; vice president, Miss Florence Marsh, Detroit; secretary, Miss Leila Scofield, Lansing.

The officers also constitute the executive committee, with power to enlarge the committee at discretion.

COLLEGE SECTION.

Pres. Sperry of Olivet called the meeting to order, there being present representatives from the following institutions: Adrian College, Agricultural College, Albion College, Alma College, Hillsdale College, Olivet College, State Normal School, University of Michigan.

On motion the following were appointed Committee on Nominations: Prof. Fall of Albion, Dr. Hinsdale of Ann Arbor, and Prof. J. T. Ewing of Alma. An introductory paper was then read on the following subject:

SCIENCE IN SECONDARY SCHOOLS AS A PREPARATION FOR COLLEGE: WHAT? HOW MUCH? METHOD?

PROF. E. A. STRONG, YPSILANTI.

The management of this section has asked me to occupy twenty minutes in a general discussion of the above subject. Owing to the limitation of time, you will hardly look for any completeness in what I have to say on this question, but will be satisfied with a few such disconnected judgments and opinions as seem to me most worthy of attention, and these put forward mainly without argument or illustration.

We may consider the question in the usual two aspects,—preparation in respect to power and preparation in respect to knowledge; but this distinction, however valid in itself and however illuminating in many directions, may well, I venture to think, be put aside here. Who doubts that a right pursuit of science does "improve the powers," as men used to say, or that a knowledge of science is a valuable acquisition? Then let me for the moment assume that acquisition must give discipline; that power is in some sort a function of knowledge.

It is implied in the very selection of this subject for discussion that there is dissatisfaction, at least on the part of the makers of this program, with the present scientific preparation for college; and I apprehend that this dissatisfaction is well grounded. Who will pretend that we have yet made the scientific course in school or college, the equivalent, or anything near the equivalent, in training power, of the old classical course? Or that the crumbs of science scattered here and there throughout this classical course, deserve any very serious consideration? With rare exceptions, when observant and reading men, whatever be their occupations or predilections, send their sons to a preparatory school, they point to the so-called classical course as the strongest one yet formed for college preparation. We may prove as often as we like, that this course is antiquated, out of relation with modern life, thin in matter and poor in quickening power,—that it tends to pedantry and to pessimism, that it puts the free spirit of man under bondage to a dead past and so weakens the pre-

cious power of initiative; we may prove, if we can, over and over, all these and many other equally serious charges against the old classical course, which yet mainly rules the college,—we must yet add that it is still the best course for most men which modern education has to offer. Not that it is so in the *nature of the case* or that it will always be so. Modernity is to have its rights, let us hope, as well as antiquity; but we are yet to learn how to secure the highest scholarship along modern lines. While we regret, we need not wonder at our slow progress in this direction. It is a great matter to fit a course of training to a new civilization. Easier build a nation than form a course of studies for the young which shall express and conserve the spirit of that nation. No, we may well be concerned at our slow progress; but we have no need to be discouraged. Our golden age—the golden age of science—does not lie in the past.

It is neither wise nor helpful to allow our dissatisfaction with the present outlook for scientific training, to express itself in "railing accusations" of our system of education or of any part of it. How much of this we hear. The general public scolds the colleges. "What in the world can these people have been doing for the past four years!" is the cry at every new exhibition of the inefficiency of some college graduate. And the colleges are not slow in catching up the refrain and hurling it down the line. "What can these boys have been doing for the four years of their high school course! They seem to know so little!" And just as the burden of college vituperation is unloaded upon the high school, so the high school charges its deficiencies upon the grammar school, and the grammar school upon the primary. Now, I suppose that all these departments of instruction are about equally in fault for the deficiencies of scientific education; or, as it is better to say, they deserve praise in about equal measure for what has been done.

Let us notice some of the influences which make against good preparation for college in the sciences. Were there time, we might call attention to a number of relatively unimportant technical obstacles to the right progress of secondary science. The bare mention of two or three of the group must suffice. (By *technical* I mean pertaining to the internal economy of the ordinary secondary school.)

There is the all-but-universal *tandem* arrangement of the sciences, instead of the more natural parallel arrangement. One science must be "completed," we think, before another is begun. Most teachers and pupils in America like to take up a new subject, push it with all vigor for a few weeks, and *finish it*,—bury it in such oblivion that no ghost of it will ever rise to trouble them more. This method has some apparent advantages. The subject for the moment fills the horizon; and, as is usual in the tandem arrangement, the voltage of attention is high; but let us not forget that the current of irrigating knowledge is low.

Then the old fear of allowing a pupil to see and judge for himself in matters of fact in science, lest he should see amiss or misjudge, is yet very prevalent. It is common in these days to cloak this fear under the specious plea that a school boy cannot be expected to *discover* truths (of law or fact) that the world long waited for and that were at last discovered only by the greatest minds. In one sense this statement is a truism, and no one ever questions it; in another sense, and the sense in which it is often used, it is a specious falsehood. Of course no school boy can proceed, like the masters of science, along a hidden path to an unknown but fruitful discovery. So, too, if discovery is held to mean coming

upon a truth of law or fact for the first time, of course it can be discovered but once. But, in the ordinary meaning of the word, a boy can discover, for example, among a number of lenses that are given him, those which are thicker in the middle than at the edges; and how each set behaves toward a beam of light; or whether a change in the amplitude of the vibration of a pendulum works a change in the time; and so on through the whole realm of science.

But what do our friends think a boy *can* do, if he cannot discover facts? Why, he can *verify* them. That is, after he has learned from a book, definition and fact and law, then, when the concept is fixed and the hour for illuminating experiment is passed, he can try whether what he as learned is true or false. Verification has its place in science, and that place is a very important one. In the case of broad generalizations and complicated laws, it is wholly legitimate; often it is the only legitimate method. But this is the proper function of demonstrative experiment. In secondary laboratory work the usual question is,—With this material and for this time and place, find the value of this quantity or discover what relation this quantity bears to that. School boys can *discover* the facts of science.

Another technical obstacle is the large number of brief courses in science, so arranged that they do not reinforce or support each other; but this difficulty, especially as to the number of subjects, is almost a thing of the past for the schools of Michigan.

Let me conclude this list of technical difficulties by naming the most subtle and serious of all,—the prevalent recitation habit. What may be called the *trade* of making a recitation, is undoubtedly the best learned trade and the most numerously followed of any in America. And by learning the trade of reciting, I do not mean learning how to deceive, with a refinement of discretion sharpened by an equal power on the other side in detecting deception. Deception is not the word. The faculty is too universal, too habitual, too unconscious. I mean simply becoming fitted to an environment consisting mainly of *hearing lessons*, instead of teaching; the trade of not giving oneself away; of being ignorant of a subject without making a mess of it. We need not wonder if the strain of learning this trade has been so great for the ordinary pupil that he has learned little else, so that the bright boy of the arithmetic class seems to know so little arithmetic outside the class; that a quadratic equation that is solved so easily in the algebra hour, is a hopeless puzzle in the physics hour; or that the brilliant classical scholar never thinks of reading his authors outside the school. These things were made for recitation and have no meaning for life.

De Morgan's catechism concerning examinations might well be applied to the American recitation:

Q. What is knowledge?
A. Something to be recited about.
Q. What is the object of the recitation?
A. To show that lessons have been learned.
Q. What is the object of learning lessons?
A. To have something to recite about.

But beyond these comparatively unimportant technical difficulties, we find some that are more serious.

No science is taught in any secondary school for a length of time sufficient to yield its full value, either as acquisition or discipline. Botany

and physics are the best taught sciences in the schools, but it is rare that more than a year is given to either. The average time given to *both* in the high schools of Michigan, is only a little more than a year. Now I believe that an ordinary boy would need as much time to gain a really competent knowledge of Balfour Stewart's Elements of Physics, as of Latin grammar and of Latin prose, and the usual texts demanded for college preparation. Of course no boy ever gains such an exact preparation in elementary physics, with all its implications, historical, linguistic, logical, metaphysical, and practical, as is called for in Latin. Such knowledge could not be gained in a year, or in two years. I do not write this with the thought of urging any considerable extension of the time at present given to this subject—or to botany, which would also become fruitful almost in proportion to the time spent upon it—but to ask that, when the culture value (as the phrase is) of physics is compared with the culture value of Latin, it be a term by term and year by year comparison.

Another difficulty with science in the secondary school is that the several sciences now taught are not well coördinated among themselves or with the other studies of the school. So much attention is just now being given to this subject that I will pass it by with the remark that the matter is at once of extreme importance and of extreme difficulty.

The great difference between the scientific instruction in different schools—both in quantity and quality—constitutes another difficulty in fitting the college course to the high school course. So diverse is this preparation that I often hardly wonder that the colleges, especially of the East, practically ignore secondary science, compelling all to take what they find that so many need.

The apparatus question, too, is one that will not down,—one, indeed, that increases in importance with the improvement of secondary science. We must have material, and material suited to our needs; but we must also be reasonable. We have not always been reasonable. In botany and zoology methods have been advocated which, if universally followed (and this is a fair test) would speedily change the entire fauna and flora of our country; and methods in physics which would largely increase the cost of secondary education,—almost to a prohibitive degree. What a simple matter our classical friends make of this supply of material,—each man provides his own. The work in Latin, for example, is typical laboratory work. For, by laboratory work we mean that in which the student is engaged directly upon the object of study, and not upon some report of it. The classical text is the exact analogue of scientific material, and the analogy is a very fruitful one. We need an improvement and extension of scientific teaching, growing out of an improved supply of scientific material, similar to the improvement of classical teaching that followed the discovery of the art of printing.

But the great difficulty with the present scientific preparation for college, arises from the imperfect articulation of the members of our educational system, especially on the scientific side. The grammar school is not fitted to the high school; the high school is not fitted to the college; the college is not fitted to the high school. For this reason, neither in high school nor college do teachers *find their pupils out*, but assume a preparation which they have not had, and neglect to build on what they have had. The younger Mill, in his inaugural address at the University of St. Andrews, says, "Every Scottish University is also a high school to supply the deficiencies of other schools. And if the English schools do

not do the same thing, it is not because the same need does not exist, but because it is disregarded. Youths come to the Scottish universities and are there taught. The majority of those who come to the English universities, come still more ignorant and ignorant they go away." It is somewhat so with us. In particular it seems to me that the colleges assume, with regard to the entering classes, a higher knowledge of English, a higher degree of mathematical power, a better habit of sure and quick inference, greater power of continued thought—of reflection, and a stronger artistic and literary sense than they actually possess; while, on the other hand, a vast body of knowledge which these young people have, is not recognized or valued or built upon. Allow me to give two or three illustrations, and these so typical as to be commonplace.

Not long ago a lad who had graduated at an eastern college, showed me three note books in science containing records respectively of grammar school, high school, and college laboratory work. In the grammar school the class had apparently taken up but three subjects, one of which was magnetism. Very admirable and careful work in making magnets, and in testing and measuring magnetic properties, occupying about two months, was well recorded and discussed. It had evidently filled the large leisure of boyhood with appropriate and delightful occupation, and left a residuum of clear and exact knowledge. But in process of time he went forward into the high school and there, too, he had, after some years of waiting, a laboratory course in physics, including six experiments in magetism; the work was vastly inferior in extent and apparently in accuracy, to the grammar school course, but so far as it went it was essentially the same. And, finally, the college experiments in magnetism, although done with superior apparatus, seemed not essentially different from those performed in the departments below. But what struck me most was the apparent want of interest and especially the want of care in the repetition of the work. The boy was sick of it. No wonder he elected a minimum of college science.

Another instance:—Three times during the past two years I have been at some cost to visit and inspect classes in 9th grade physics. It seemed to me very important to know what effect this early work had upon the educational history of the pupils taking it. Judge of my surprise when I learned that no account whatever was made by the "regular teacher of physics" of this 9th grade work, and one such teacher did not seem to know of the existence of this work. Now, all this is very natural. It is beyond the power of the unregenerate imagination to throw about another man's work the roseate glow that surrounds his own. The veteran in science takes pride in the processes and methods which he has himself invented, and so looks upon his college science with ill concealed contempt. He complains, "There is so little of it, and one has so soon to learn that little over again!", forgetting that the college has progressed as well as he. And in the same way, high school science seems to the college professor slight and unimportant. Even if he speaks well of it, he is never to be understood as for a moment willing to have it counted, year for year, against his own work. And it is equally difficult for the high school teacher not to look upon elementary science as at best a harmless amusement for children and always in danger of taking the keen edge of interest off his own work, when the pupils come to it.

Now are not all these stages equally important, and do they not deserve equal consideration? Should not each occupy its distinctive place and

be accepted at its full value and built upon in the department above? But what do we actually find? In the high school all elementary studies in science are usually ignored, and the college takes very much the same attitude with regard to high school science. If the college gives any credit for this work, it is usually a small time credit which does not relieve the student from the necessity of beginning all studies anew in college. Let us look the facts fairly in the face. Two pupils enter the high school; one gives his time for four years to a course in which the classical languages form the distinctive feature of the work, the other gives an equal amount of time and effort to a course founded upon science. Both graduate and enter college. The former not only gets full credit for his four years' study, but he is not asked to repeat his Cæsar, or his Cicero, or his Virgil, or his Latin or Greek grammar. If he has had German in his earlier course, he is not classified with beginners in German, but with advanced pupils; and so for other subjects. The other boy, too, gets in a *general* way, credit for his high school studies; but practically these studies are rated at zero. He is classified with beginners in astronomy and geology and chemistry and other sciences, just as if he had not given four years of toil to these subjects,—alongside, indeed, his classical friend, who has done none of this work.

Why, then, does not high school science thrive and advance? Because the college affixes to it the badge of inferiority and puts upon it the stamp of disapproval by refusing to recognize and build upon it. Now I do not mean to say that the colleges are wrong in this view of the case. Indeed, I do not well see how they can take a different attitude toward this question; but should they not either advise the schools not to offer science as a part of preparatory work, or else direct it and then accept it at its face value?

Some remedial suggestions:

1. Our discussion points to a unitary minimum course in science for high schools, which is to be taken by all pupils upon all courses of study. This required work has been indicated in a general way by committees which reported yesterday, but the reports need to be harmonized and written out more in detail.

2. A clear statement on the part of college authorities as to the kind and amount of additional work in each science which would be accepted by them as an equivalent for their own elementary courses. The schools could then determine what work, if any, of this grade they were prepared to offer. This would not, of course, prevent them from offering more elementary or more synoptical courses suited to the needs of such of their graduates as did not intend to go to college. This provision would have two results: first, it would diminish somewhat the number of diploma schools; secondly, it would compel the diploma schools to employ men competent to teach at least the first year of college science.

3. The recognition of partial preparatory work done by the non-diploma schools. It is generally recognized at present that some of these schools are doing work of a higher order,—work upon a few subjects more exact and extended than can be done by the smaller diploma school upon the whole field of preparatory studies. It would be a great gain to education to recognize this superiority of quality over quantity of work.

4. An understanding concerning the kind and amount of formal knowledge, especially of language and mathematics, needed in advanced scientific work. It is quite possible that the teachers of the sciences in

our colleges, would prefer students strongly prepared—say in Latin, German, and mathematics, with only physics and botany in addition—to those who have no language and inferior mathematical training, but who have a more extended course in science.

5. The careful revision of the usual lists of classical experiments and of pieces of apparatus most essential in teaching science. It is a great misfortune that the Committee of Ten gives its sanction to lists of this kind prepared so hastily and with so little time for conference.

The discussion of Dr. Strong's paper was under the three-fold division of physics, chemistry, and biology.

DISCUSSION.

PHYSICS—PROF. J. O. REED, Ann Arbor:

It seems to me that our science teaching in the State of Michigan is, and has been for the past ten years, in a very marked state of transition. While, as is well known, I have perhaps a somewhat more hopeful view of the subject of science teaching in general, and of physics teaching in particular, than I think is sounded in the paper which we have heard, in some respects, at least, I am fully aware that the matter is not in as hopeful a condition as it might be and as I hope in a few years it will be. Personally, I do not regard (to refer to a few points of the paper) I do not regard the recitation in so bad a light as, it seems to me, it has been placed today. While I can not, from limitation of time, outline what I believe to be a fair and honorable presentation of laboratory work as compared with classics, with which it must be called to stand face to face, yet I believe, and I think I have some reason for believing, that recitation upon the text, if you please, because I thoroughly believe it has a place, is not entirely a matter of hide-and-seek between pupil and teacher. When we take into account the warmth, and the interest, and the life and vigor, that come from a personal contact between teacher and pupil, if it be merely a game of hide-and-seek, it would seem to be admirably well played.

The preparation for science work for the college implies certain acquisitions of fundamental facts. I have had occasion to remark in my work that the first course in physics in the university is perhaps a more difficult course than any other one for this reason,—science at the outset must have a reasonable amount of mental furniture. The scientific student must be fitted with a nomenclature, with a series of ideas to which he can attach certain values. Whether it is better that he shall come to it by means of discovery or whether he must learn his lesson, he must get these ideas, and it is the business of the instructor in physics to see that he has them. After this has been done and the mental furniture supplied, we are prepared to go forward. The work, it seems to me, in scientific preparation for college has for one of its aims this mental fitting of the student. That the words themselves are to be furnished without the idea, is too ridiculous to be discussed for a moment. As to how this shall be done, time forbids the discussion. Then I should mark, as one of the requisites for a scientific preparation in physics, a fitting of the mental furniture by a clear and definite and far reaching knowledge of these definitions, these fundamental conceptions. Second, there are certain mathematical relations that are fundamental in physics. These fundamental relations must be implanted for once and for all time. When once properly implanted, they stay there and furnish a foundation on which we can build. Then the second is a complete, definite, and ready understanding of mathematical relations. Third, the pupil who comes into the university or college to do work in physics, if he has been prepared in a high school or academy that has done what it should do and what it can do and what, in the future, it must do, has acquired some skill in the technical manipulation. A boy who can handle a microscope, a foot-rule—a boy who can pick up a lense and not drop it upon the floor—has acquired an element of a liberal education. That this can be done and is done and must be done before other things are possible, I believe to be well accepted.

CHEMISTRY—PROF. DELOS FALL, Albion:

It is not necessary to argue for a place in the high school course for chemistry and physics—the Committee of Ten have urged it. The fact that so much time even in the classical course in our colleges and universities has been made elective, and that, in

consequence, so much time is spent in science work in the college, makes it necessary that due preparation shall be made for it in the secondary schools.

Classical training, in a measure, unfits the student to pursue the scientific method, and hence a part of his preparatory training should be according to that method. Sophomores in college ought not to be obliged to *begin* a science. The beginning should be in the preparatory course. *Physics should precede chemistry.* The Committee of Ten resolved otherwise and that not for a good reason. A proper order would be:—algebra, 9th grade; geometry, 10th grade; physics, 11th grade; chemistry, 12th grade.

If maturity of mind is urged for a proper appreciation of the deep things of physics, surely we would say that still more will be required for the full understanding of chemical phenomena. Physics deals largely with the mass, that which is visible to the natural eye, that which can be handled, measured, etc.; and the phenomena arising from them are also readily cognized. The deep mysteries of molecular physics may be put over against the deeper and more mysterious atomic chemistry, and the phenomena of mere physical change over against that of the deeper and more intangible chemical change. The character of a physical change can be observed, that of a chemical change can only be inferred. As Prof. Waggener has truly said, "The rational study of chemical phenomena is therefore of a higher order of difficulty than those of physics—certainly than those of molecular physics—the portion of the subject to which the work of the high school in this branch is largely directed."

Again, there are many subjects which are physical in their nature that must be understood before any progress whatever can be made in the science of chemistry. The laws of the indestructibility of matter, of the conservation of energy, of density, of specific gravity, ebullition, evaporation, heat, specific heat, of light in its application to spectrum analysis, of electricity in the various problems of electrolysis, etc., etc. These and many others, physical facts and theories, would seem to be absolutely indispensable to the successful pursuit of chemistry. On the other hand, it can not be said that chemistry, in any vital way, is a preparation for physics.

How Much Chemistry?—Very much depends upon the teacher. The Committee of Ten thought that 200 hours each should be given to physics and chemistry. One member, Professor Gage, thought that 150 hours might suffice for chemistry. With a good teacher and the right method, the latter number would give a good preparation for college chemistry.

Method in Chemistry.—For a high school course, I should urge that the method have as its aim the discipline and culture of the student rather than the idea of filling the mind with the mere facts and phenomena of chemistry. Such a method would fit the student for his after life, whether that life should be in the world of actual business or in college. What the teacher of chemistry in the college wants, is that candidates for his class shall be able to think clearly along the lines of chemical philosophy; that they shall have learned in their preparatory work that chemistry furnishes a set of truths, arguments, and conclusions upon which the mind may operate; that this is a science in which most emphatically the learner must think for himself. It is very important that the hand and eye shall be trained to accuracy; that the difficulties of manipulation shall be conquered so that, when the student comes to the more vigorous demonstrations of the college course, he shall not be embarrassed at the sight of apparatus and how to get good results from it. It goes without saying that there should be a laboratory where the student may take apparatus into his own hands, conduct his own experiments, record his observations, tabulate his work, draw his own conclusions, verify his results.

It is of the greatest importance, however, that the thinking which the student does shall come under the observation and criticism of the teacher: and it is no doubt true that, in in the case of some teachers, zeal for a large amount of experimentation, destroys the diligence which ought to be insisted upon when the thinking is done; that is to say, laboratory experiments are always a means to an end and never an end in themselves. One successful experiment which gives rise to a large amount of wholesome and vigorous discussion, participated in by teacher and pupil, is worth much more than many experiments with no further thought expended upon them.

Laboratory teaching, then, does not consist in the mere directions for observation, experimentation, tabulating, showing a series of facts by graphic methods, etc., etc. All this is necessary, and it is a large part of the business of both teacher and pupil that they be fertile in expedients, inexhaustible in resources, ingenious in methods by which facts may be ascertained and exhibited, so shown that the mind may grasp them in their relations and at a single glance. But all this is only a means to an end, and the teaching that stops with this commits the sin, as Stückenburg in his Introduction to Philosophy, puts it, of "depreciating thought and exalting the sense to the throne of reason." While the great Bacon is justly considered as the father of the scientific

method, yet it is to be questioned whether in his plans he went any farther than that of empirically collecting facts and exhaustively classifying them. We must go farther than this. If not, we shall be like the attendant who mixes the colors, arranges the canvas, and cleans the pallet for a great painter, who, by an exalted condition of mind of which he himself is the possessor, is able so to dispose the colors on the canvas as to produce a masterpiece. It must be insisted that "observation and experiment furnish only the material of chemistry, not chemistry itself." Back of the phenomena there are principles and laws, and it is the privilege and the province of the student to study, to understand these laws. As Hemholtz says, "What physical science strives after is the knowledge of laws; in other words, the knowledge how at different times, under the same conditions, the same results may be brought about." Professor Tait says, "The object of all pure physical science is to endeavor to grasp more and more perfectly the nature and laws of the external world."

The court of last appeal, then, for the scientist as well as the philosopher, is the reason. To it all facts ascertained through the senses are brought for interpretation, correction, and explanation; and without the exercise of this faculty, what we see and hear, smell, touch, and taste, would limit our knowledge, whereas when we have reasoned about them, they are expanded into broad truths. The scientific student of today, catching the spirit of inquiry into the causes of natural phenomena, delighting as he does in speculation and philosophizing, influenced as we all are by the stimulus given to scientific investigation by Darwin and his followers, such a student will not accept Mr. Spencer's definition of chemistry, when he calls it "a systematized collection of facts ascertained with precision, and so classified and generalized as to enable us to say with certainty concerning each simple or compound substance what change will occur in it under certain conditions." We will not agree with Dr. Cocker that "Philosophy must include science, but science does not necessarily include philosophy." Such assumptions that science is of a lower grade, employing less of the man, less of his mental powers, than other fields of scholastic effort, has had the effect to degrade both the work and the worker. The student of chemistry as well as the student of biology, and these, no less than the student of philosophy, will not rest satisfied until the highest powers of the mind are enlisted in fully solving the intricacies of the problem placed before him for study.

Botanists formerly were content to classify and name plants as they found them; now they seek with much more interest than before to know how they came to be so. In the same way the chemist must not only note the properties of substances before chemical action takes place, and the properties of the resulting compound, but he seeks to know the history of the successive changes by which the one has been produced from the other. Sulphuric acid, ferrous sulphate, and a nitrate salt possess certain properties. Combined they give rise to a ferric salt and nitric oxide with altogether different properties. The interest surrounding this problem is not exhausted when these properties are noted and catalogued. How did it all come about? What was the initial movement? What was the governing cause of that movement? What relative number of atoms, what number of molecules took part in the transactions, etc., etc.?

Our experience in the laboratory every day demonstrates to us the inability of our senses alone to give correct notions concerning that which is studied. We say that we use a microscope to aid our natural powers of sight, but every one knows that what is seen by this marvelous instrument has still to be interpreted, explained, reasoned upon, before correct notions are gained. I will close with another quotation from Tait: "Those who imagine that reason is liable to err, but that knowledge obtained through sensation is absolutely reliable, agree neither with the philosophers, nor with the leading scientists. The history of science shows that observation is very apt to make mistakes, and what is termed the scientific method is intended to prevent these mistakes as well as to make the observation as full as possible." He adds, "Reason and sense must coöperate, but the supremacy of the former is unquestioned, reason acting as interpreter as well as judge, while the senses are merely the witnesses who may be more or less untrustworthy and incompetent, but are nevertheless of unconceivable value to us, because they are our only available ones." And again, in another place he says, "The indications given by the senses, unless interpreted by reason, are utterly unmeaning; but when reason and the senses work harmoniously together, they open to us an absolutely illimitable prospect of mysteries to be explored."

BIOLOGY—PROF. CHAS. A. DAVIS, Alma:

Mr. President, Ladies and Gentlemen:—It is not my purpose to enter into a formal discussion of the introductory paper, for I am not prepared either by previous acquaintance with the arguments brought forward or by nature, to find fault with so fair and

just a presentation of the subject; and certainly it cannot help commending itself to you, and so needs no praise from me.

I do propose, however, from the standpoint of the teacher of biology, to call your attention to certain defects in the training of the students who come into our colleges, and to suggest for your consideration certain plans which, if carried into effect, will eliminate these defects in large part, if not wholly. As to the defects, it is almost if not quite the universal complaint of teachers of science, and of biology in particular, that students are either wholly untrained or very badly trained in certain mental faculties, when they reach the colleges. To state it mildly, this bad training makes it difficult for most of them to do profitable or even intelligent work along biological lines; and, as a consequence of the poor educational results obtained, the value of biological science to the average student as a means of discipline, is frequently questioned.

The mental powers most noticeably defective in our students, when they reach the class in biology are observation, originality, independence of authority, thoughtfulness and patience. Others might be mentioned, but these will suffice for our purpose; and when we add to them the mental inertia of the average student, it becomes easy to see that the burdens of the teacher of biology are not few nor light. The cause of this very general experience is naturally traced backward, until we reach the preparatory schools; and it is quite the customary thing to lay the blame there, and as if there were no remedy, to work along in the old way, laboring with the students which these schools send us. From the following considerations, it seems to me unfair to throw all the responsibility of the above defects of training on the preparatory schools:—

First: The teachers of the preparatory schools are usually graduates of our colleges and universities, and teach as they have been taught.

Second: The colleges have kept up a constant demand for more and more classics and mathematics, more and more modern and English language work in the preparatory schools, until their courses are so overloaded with these subjects that, when we say more "science"—for we hardly dare say biology—the principals of the schools ask us where they can find time and place for it, or refuse peremptorily to listen to us.

Third: In our discussions and plans for courses of study we too often lose sight of the fact that "Science" is broad generalization, about equivalent to language or mathematics; and, while the study of the elements of one science may be in a sense a preparation for the study of the elements of another, it does not answer for the actual study. The teacher of Greek does not think a course in the elements of French grammar a good equivalent for Greek grammar, and yet oftentimes we are asked to admit students to advanced standing in biology whose only preparation is a course in elementary chemistry.

Fourth: Teachers in colleges and universities frequently lose sight of the fact that work may have a genuine educational value quite apart from its purely scientific value. In other words, work which seems exceedingly trivial and uninteresting to the specialist, may have a very practical value in interesting and training the beginner, and may be all that the latter can comprehend, even though he may be mature in years and body. If this is true, and the experience of many teachers of note, in biology especially, seems to indicate that it is, we would better be deliberate in driving out of our preparatory schools the study of the systematic and morphological characters of the higher life forms, for the more logical, but at the same time more difficult, study of the cell and the lower types of life.

Fifth: The attempt to graft upon our educational system the methods of the German universities without introducing the work of the lower German schools into our own preparatory schools, has been a source of much tribulation to publishers, teachers of colleges and preparatory schools, and most of all to the pupils.

I wish there were time to discuss each of the above statements in full, for they are fundamental and must be thoroughly understood by the authorities of our colleges before we shall have the radical changes needed to place the subjects taught under the general heading "biology," in their proper relation to other subjects in our educational curriculum.

Biology is the science which relates to the study of living things; and while, as a science, it is scarcely more than a hundred years old, it has already made a greater change in the systems of philosophy, of education, of the older physical sciences, and of theology, than any other single force. Hence, it seems that it is worthy a dignified and prominent place in our courses of study, both in colleges and in the lower schools,—but a careful search fails to show that it is accorded such a place. Usually, now, in our colleges in certain courses, biology is given a place; and students taking the subject are required to pursue the study of it for a year, and in some cases are allowed to elect it for another year. In the preparatory courses, botany is given a term or two, rarely

a whole year, while zoölogy is seldom taught at all. If we compare the amount of time given to mathematics, or to the classics, we find a marvelous state of affairs. The college Latin and Greek together occupy fully one-half the time of certain students for two years, and they may elect the subjects for nearly as much more time, while in the preparatory schools so much time is given to them in what is considered the highest course, that the pupil has no time for anything else except—mathematics. It would seem that there is reason why the graduates of our colleges and preparatory schools should be looked upon as unpractical, when we consider how much time they have been required to give to the things of a thousand or two years ago, and how little to those of today. Most of the graduates of our classical courses are blind to the myriad forms of life about them when they enter the college, and when they leave they are indifferent as well as blind, while as children they were full of interest for all things and full of eager questions concerning them.

Now, to take up in detail the questions of the topic, I would answer the first, as applied to biology, by saying "The plants and animals about the pupil."

The plants that can be found by any and every one of the pupils of any school or that can be raised in any school room, furnish material for endless study that can be made of the highest disciplinary value in lines in which the pupils of most of our schools get practically none. Of the biological sciences, botany, or plant study, is the more useful in the ordinary school, for plants are more easily watched than animals, more readily kept alive, and more easily obtained for study. The teacher of biology should be given time to prepare and plan work for his classes, suitable to the needs of each one. At present I realize how few teachers in botany, even in the best equipped of our schools and colleges, have even a fair amount of time allotted to them; but in the ideal school, each teacher would have time to think and be well enough trained to do so. Much can be done in zoölogy, if the proper animals are chosen for observation; and profitable and good work can be done by studying plants and animals comparatively and in their inter-relationships. Of the various animals aquatic forms are perhaps most easily kept in laboratories under somewhat normal conditions, and small aquaria can be improvised from glass fruit-cans and bottles, if care is taken not to overcrowd them.

To the question "How much?", I would unhesitatingly answer, "As much as possible." And I would add that the work should begin in the kindergarten and be carried on from grade to grade, as are reading and writing. Call the work what you will, nature-study or anything else, but keep the pupils of our schools alive to what is about them, and make the finding out of the secrets of the plants and animals which are everywhere, a matter of every day business with the young people of our schools, and you have gone far towards a correct solution of many of the gravest problems of the educators of the country. If the work is well done, it will not only furnish mental stimulus of a perfectly healthy kind, but will give a cause for physical exertion more healthful than calisthenics and more safe than foot-ball.

As to method, there is much that can be said, but the wise teacher works in his own way and according to the needs of his classes, and says very little.

I would prefer, if I were to state frankly my personal belief, that the earlier work of preparatory classes of whatever grade be the study of botany, a study of the higher orders of flowering plants, their organs, their habits, and their classification. I believe that the best results in many ways are obtained by such study; and, moreover, the interest of most students is excited from the outset, for they have a curiosity to know the names of the flowers with which they have been familiar from their earliest childhood. I would, however, insist that botany is the study of plants, not of books; and I would try never to use or define a term before classes that was not accompanied by the thing named, until the class had learned what the word meant. It has become the fashion to study the lowest types of plants first, and to introduce the pupil by means of the microscope into a world that is not only unknown to him, but invisible to his unaided eye. I believe that this is an error, and it certainly is not in accordance with the sound pedagogical principle that "from the known to the unknown" is the logical order. While I would recommend the use of both simple and compound microscopes as much as is possible, I would not have a class of students who had never studied plants at all begin with the study of the protophytes; for the natural difficulties of the beginner are greatly increased by the mechanical and artificial ones which are forced upon him by that complex and delicate instrument of precision, the compound microscope.

Laboratory work is of the highest use in the study of biology, but it is not all there is to it by any means. The tendency has been, and even now is, to make much of the study of morphology; but I would suggest that much be made also of the study of the form under examination in the field, and in its natural environment, and that some study be made of the habits of each type considered. In order to have the pupil

understand all he sees, frequent suggestive questions must be asked by the teacher, and talks on the subject of study and for the broad principles of the science must be given as they are suggested by the progress of the work.

In zoölogy a similar course should be pursued and, if proper time be given to the study of the part of the science taken up, there need be little cause for complaint when the student reaches college; but no preparatory school course of less than a year to each of the biological sciences, should be tolerated by the colleges of the present day.

At this point the Committee on Nominations made the following report: For president, C. H. Gurney of Hillsdale; for vice president, E. A. Strong of Ypsilanti; for secretary, J. T. Ewing Jr., of Alma. The report being duly accepted, the last paper was presented.

DISCIPLINARY VALUE OF FORMAL LOGIC.

MR. GEORGE REBEC, U. OF M.

Nobody, I imagine, would deny that formal logic has *some* disciplinary value; our question is rather how to increase that value. I am of the opinion that this can most largely be done by modifying the whole conception under which the subject is still commonly set forth in our books and school rooms. It is time, I am convinced, that we stop teaching formal logic as the mighty Science of Thought, and acknowledge it to be the simple critical art which it really is. Not only will this modified presentation, as I believe, realize for the subject its highest effectiveness as a discipline, but it is the only theoretically justifiable treatment. When first writing out this paper, I set down with some fullness my reasons for believing that this treatment is the only correct one, but found also that the attempt was carrying me to a length of twice the allotted twenty minutes, and quite away from the direct practical track to which after all we are here expected to keep. You will pardon me, therefore, if I have decided to leave out all this theorizing and be boldly dogmatic. I shall preface merely by asserting that the science which genuinely investigates the forms and laws of thought, is the so-called Real Logic, whereas Formal Logic concerns itself with these laws and forms only in so far as a knowledge of them enables us to test the validity of trains of reasoning; for, as already said, formal logic is not a science, but an art. Now, what are the consequences for discipline of this view of the subject?

As a first result we may put down a clearing up of confusion, a simplifying and knitting together of details under a single, firmly-bounded purpose. Think of the materials collected together in the ordinary logic book! The history of formal logic has made it like a barbarian state,—a dominion without boundaries, whose vague claims extend into half a score of neighboring realms. Its founder marked no limits for it, and his successors have, each according to his power or ambition, pushed out its pretensions in almost every possible direction. It not only arrogates to itself the proud title of mistress at once of arts and sciences, but has raised in our age the at least seemingly contradictory claim of constituting a province of the grand universal empire of mathematics. And it has ended by being peopled with paragraphs and propositions drawn in varying proportions from metaphysic, psychology, rhetoric, grammar, philology or even anthropology, the art of debate, and both the theories and practical methods of physical science,—all bewilderingly commingled under one name. Now I do not assert that *all* this profusion and con-

fusion of materials is chargeable to the treatment of formal logic as the science of thought. More or less diversity of content, our books must always show. Thus some topics, like the Predicables, for example, or, until recently, the Ten Categories, tradition has so firmly established that they cannot soon be displaced, even though their prominent presence can scarce be adequately justified for reason. Again, since formal logic's account of concept, judgment, and reasoning, though amply complete for the special purpose of the art, is, when compared with the concrete fullness of the psychic reality, one-sided and fragmentary, it is very desirable that any treatment of logic should contain frequent corrective appeals to psychology. How important such watchful reference to psychology is, becomes very evident if we reflect, in the first place, that formal logic has to serve as a propædeutic for a large share of our philosophy-students, but that, secondly, one-sided and unreal modes of conceiving our mental activities having once become habitual, it is well-nigh impossible, as the whole history of philosophy proves, to break away from them, whereas at the same time nothing is more indispensable to successful philosophic study, than keeping fresh and unbiased the power of introspective observation. And what is true of psychology holds also of real logic,—formal logic should often call to mind its deeper and more adequate analyses. But my point is that all such digressions should be clearly motived, and that writer and teacher should grasp their exact bearing. As things now are, though, teacher and writer too often lack a thoroughly clear-cut idea of just what they are after, their ultimate criterion of the relevancy and right proportion of details seeming to be a mere general common-sense appreciation of what is useful and edifying. Now the main root of their trouble, I hold, lies in the fact that, side by side with the necessity, which fortunately they cannot escape, of developing formal logic as a mere practical instrument for the guidance of argument, they labor more or less under the notion that at the same time they are setting forth the grand universal Science of Mind and of all that enters mind. For example, many a teacher spends a goodly fraction of his all too meagre time in developing before the astonished gaze of his classes, the wonderful discoveries of mathematical logic, because he imagines it incumbent upon him to search deeply all the caves and ways of thought; whereas the simple truth is, that howsoever important for scientific logic these manipulations may be, on formal logic's proper aim of strengthening the student's mind against bad thinking (the kind of bad thinking, be it noted, that takes place in words), their direct bearing is hardly more than that of elementary algebra, of which study, moreover, they are, as a means of discipline, an inferior competitor. The same thing is to be said of long and subtle discussions of the various theories of judgment and syllogism;—for formal logic, the old 'extensive' view of thought is at once sufficient and the best. So also of deep-delving into the controversy about Universals, —all these things are interesting, and may even be very useful; which fact will always tend to win champions for them, as for the whole attempt to develop formal logic as a theory of thought; none the less they are, when carried to any great length, mere excursions into real logic, and should be recognized as such. How far they may with profit be pursued in the ordinary formal logic course, will largely depend on the age of one's pupils, and on the amount of time at one's disposal; but in no case should they be allowed seriously to confuse the student's vision of the subject as a *total*. For what, in any study, can compensate the learner,

if the matter present not to him the view of a systematic, close-knit unity, such that, advancing through it step by step, he shall experience the strenuous exercise of long-sustained, coherent thinking, and the keen sweet satisfaction of feeling himself in the presence of clear and thorough rationality?

A second advantage of confining formal logic to its proper bounds as a practical art, will be that it will rid us of the *Scientia Scientiarum* absurdity. I for one am called upon each semester to explain to an inquiring pupil or two, that a study of formal logic will not in some sort give them a mastery of the springs of mind and the sources of knowledge. This opinion, I fear, is rather common among innocent spirits; indeed, do not the logicians themselves seem to hold it? They still describe their supposed science by all of those high-sounding epithets of Science of Sciences, Art of Arts, Mistress of Arts and Sciences, which have come down to us from the Middle Ages, when they were meant to express men's belief that the Categories and Essences of logic actually expressed the innermost nature of things, and that syllogistic discussion was the universal organon. Does not our own Jevons, by an upside-down etymology, demonstrate that all the special sciences are merely so many special logics? Now unless anyone is willing to contend that discipline is a mere development of strength, and not of mental temperament and inclination, it cannot be claimed that objection to all this is the raising of a point irrelevant to the present discussion. The tendency of any falsely pretentious subject is to bring about in the student one or the other of two mental attitudes. If he is sharp enough to become aware of its inadequacy to its large claims, he is liable to be filled with contempt, not solely towards what in it is sham, but equally towards its genuine merits, and those of the whole field of learning to which it belongs,—a thing of which we have repeated famous instances in connection with logic, and which cannot but be happening more or less every day, certainly much to the discomfiture of those of us who are obliged largely to depend on formal logic as introductive of the student to an interest in philosophic study. On the other hand, if the youth takes the subject at its own valuation, a knowledge of it readily makes big his head with a vain conceit of wisdom of the same stripe as that so commonly engendered in our debating and speech-making societies. This disease is one against which mankind needs everywhere to be guarded, but in a democracy, where the legal right of asserting opinion is quite generally interpreted as an intellectual and moral qualification to do so, resistance to it becomes a public duty. It is the *business* of us teachers of formal logic to take our subject altogether out of the category of grandiloquent misinformation, and frankly to acknowledge that it is mistress of arts and sciences in no other way than the worthy craft of piano-tuning is mistress of the music of the piano-forte.

However, this and all similar advantages accruing to discipline from the artistical presentation of formal logic, I am ready to waive, if anyone insist that they are trivial. The result on which I have meant right along to stake my claims for this altered teaching, is the following:—namely, that with the art-view of logic will come about a transference of the center of gravity of the subject, from the exposition of theoretical subtleties to extended practical exercises, of which only two sorts need be mentioned,—first, the application of syllogistic analysis to the only kind of cases in which it is of real use, to wit, to complex arguments and

ernment by a minority is unjust," or that "Character is the sole source of a man's good or ill." Such questions as these furnish not only an abundance of easily available matter for the teacher, but a many-sided discipline for the student, contributory alike to intellectual acumen and moral liberalization.

It has become customary to devote a large portion of our text-books to a treatment of Inductive Logic. I trust what I have already said about the relation of the two logics will have sufficed to make clear that this inclusion of the new logic in the same course with the old, is not theoretically necessary. Mill is right in his opinion that even the name Formal Logic, since it has no significance other than historical, might well be reserved for the older branch, and not extended to the new: the purposes of the two, as already said, are quite different, the aim of the one being to prove the scientific relation of cause and effect, that of the other to weigh arguments bodied forth in words. Speaking, however, from the disciplinary point of view, is their combination *desirable?* That again is a question depending on one's pupils and the amount of one's time. With regard to the *average* student, for whom the old logic is well fitted, the case is as Mill has pointed out; he is likely to be quite unprepared for inductive logic. It may indeed be of a general culture value to him, to be told some of the broad, elementary facts concerning the methods of science; but long descriptions of experiments, observations, and complicated inductions in departments of research of which the general student knows next to nothing, are a mere waste of time. The way to learn observation is not from a book, but out in nature or in a laboratory. Inductive logic may be a capital help for the special student actually at work in some science; but for the ordinary lower-classman at college, it is, so far as discipline goes, just about good for nothing.

One matter more, and then I am done. Near the beginning, I maintained that treating formal logic as an art, would simplify and give proportion and organic coherence to the theoretical exposition of the subject. There is one part, however, which under any treatment is liable to present the aspect of a mere loose aggregate. I refer to the syllogistic moods and figures, their reductions, and the rules, general and special, of the syllogism. Barbara, Celarent, Darii, and the various rules, are only too likely at first to overwhelm the student as some providentially-preserved, mysteriously-potent engine, bequeathed by the schoolmen to help poor students through a variety of almost equally mysterious difficulties. But presently he demands to be shown the precise *meaning* of these devices, distinctions, and prescriptions; and in so far as he cannot understand, he is prone to despise. Nevertheless, I believe that all these things more or less respectable *raison d'être*, even poor Barbara and [illegible] and it ought to be made clear to our pupils. Rules, moods, figures should be brought out as by necessity in the course of the exp[illegible] the subject, and the student should be led, as it were, into [illegible] them for himself. Thus our theoretical exposition will gain [illegible] degree the disciplinary advantage not only of system, but o[illegible] for, other things being equal, that discipline is the more effect[illegible] impresses the student as belonging somehow to life and reality.

The whole matter of the syllogism might be brought before [illegible] in some such wise as this:—In scrutinizing simple examples of [illegible] we first notice, as Aristotle must also first have noticed, tha[illegible] two terms permit of being reasoned toge[illegible] virtue o[illegible]

tion to a third or middle term. However, not every middle enables us to syllogize together a subject and predicate, but only when the relation of the three terms is such that the middle is wholly included under or wholly excluded from the predicate (always designated as the major), while the subject (known as the minor) is at least partially included under the middle. The statement of this fact is the Canon of the syllogism. The relation asserted by it, is easily evident in many cases, the valid moods of the First or Perfect Figure, so-called because it does thus illustrate the canon, and is the form in which we most naturally reason. The first figure is in practice still more readily recognized from the fact that in it the middle term is subject of the major's premise and predicate of the minor's. Not every time, though, that we have these positions of the middle, do we find the requirements of the canon fulfilled: there is need further of considering the kinds of propositions combined. Hence our necessity of attending to Moods, and of formulating rules that shall tell us when our syllogisms are correct. In those cases where the positions of the middle are different from those just given for the first figure, that is, in the three so-called imperfect figures, the fulfillment of the requirements of the canon is not in general equally evident; but in so far as these cases, in virtue of the laws of conversion, are reducible to forms of the first figure, the relation according to the canon may be affirmed also of them. Here the rationale of Reduction to the first figure. Once more, not every reasoning through a middle satisfies us as valid, whether in the first figure or in the others. How are we to distinguish the bad cases from the good? Partly, by making sure that our syllogism contains but three terms (especially that our middle be not ambiguous). This gives us the first of the rules of the syllogism. Again, a little inspection reveals that, in any figure, unless we have a proper distribution of terms, and a properly guarded use of negatives and particular propositions, our syllogism will not hold. Thus we arrive at the remaining half-dozen rules of syllogism. But still again, our testing of the rules governing distribution and the use of negatives and particulars, has brought to light the fact that a mood may be valid in one figure and not in another. Hence the value not only of noting and remembering the valid moods in each figure, but also of working out a few special rules applicable to the separate figures. And now, having done all this, it will be profitable to point out and *illustrate*, that the different figures may *really* be *useful* for different purposes.

Some such presentation as the foregoing of the syllogism—I do not insist on the correctness of any of my details—will not only, I believe, make the subject seem more rational and enhance its disciplinary value, but will fit in most thoroughly with that treatment of formal logic as art, which this paper was written to advocate.

DISCUSSION.

Opened by PRES. SPERRY of Olivet:

This is a very interesting paper, and ought in some way to receive due recognition from us. I would like to say to the gentleman who read it, that the call for this paper arose in a way which his paper suggested. I became personally acquainted with some brilliant young men, recent graduates of great universities in the East, who did not hesitate to express their utter contempt for the whole science of logic. It was because of that feeling which I found with them—they were young men whose mental processes I have reason to respect—that I asked for this statement; and personally I feel

very grateful to the writer of the paper for suggesting what may be the real sphere of usefulness for the syllogism. I had always connected it with the deductive process, where reasoning is from the premise to the conclusion; and I have distrusted that process more and more as I thought about it, and I am glad to hear what our friend had to say in regard to reasoning from another process where the conclusion is taken first. I would like to express my feeling of satisfaction in the paper as being a modest estimate of the sphere of usefulness of this science, taking it out of the region of the "art of arts and science of science dictum" of the past, which has done very much to throw discredit upon the whole subject. Now, as a person who does not know anything about this matter, I think I have done well in introducing discussion upon it. There has been a question in my mind in regard to this—whether in the ordinary process of reasoning we use the syllogistic method at all. It will be safe now for me to speak of numerous illogical sermons which have come under my observation, from one who had been much interested in formal logic; and I marvel how anybody could write such illogical sermons and still know all about the study of formal logic. Will some one explain this matter to us?

DR. HINSDALE of Ann Arbor:

In reference to the question which has been asked, I will observe, first, that it is an interesting one, and, second, that it is a question that confronts us in a great many places. Our life, whether in the intellectual, moral, or physical sphere, is, to a very great extent, a thing of habit,—I was about to say almost wholly a thing of habit; and, if I were to lump humanity together, I think that expression would be correct. Our habits are formed through activity, and they rest upon repetition and the associating activities. These activities are at first exercised without any reference to formulated rules and without any reference to our own consciousness. The activities are spontaneous and unconscious. As a result of our spontaneous and unconscious activities, we develop a set of habits which govern observation, judgment, inference, speech, and the whole complicated process of the mental life. To a great extent this work is wrought out in the economy of life before logic or any form of reflective mental science. Now, the student in college, ranging from the age of 20 to 22, for the first time comes to study formal logic. It is a thing which is merely mechanical to him. He has learned to think by thinking; to observe by observing. His mental power has not been built up by the application of rules. He now studies a more or less correct analysis of the processes that he has been carrying on from the time he began to observe and think. It has been said that English grammar is the art of using the English language with propriety. There is little truth in that. Grammar is not properly the art of using the English language with propriety, or in any other way. English grammar is science, and not art; it is the reflective treatment of language, and influences the use of language only indirectly. We all know people who parse well but never use good English; this is because (1) they have not by imitation or habit learned good English, and (2) because there has never been any real or vital connection established between their study of language and their use of language. As it is with the use of language, so it is with the control and manipulation of the reasoning process. The professor of logic and preacher referred to, learned to reason, in his poor way, in the same way that we all learn to reason. His bad thinking was not checked, and he was not properly guided; therefore, he came to reason very badly on religious subjects, and probably on many other subjects. The practical question is,—How are we going to build the bridge that connects dead, or theoretical knowledge, on the one part with practical, or living power on the other? How are we going to unite knowledge as a mere acquisition of the mind and ability to perform? The person who can answer that question has solved the most difficult problem that pertains to education.

PRESIDENT FISKE of Albion:

Mr. Chairman, I did not mean to say anything on this subject, because I regard it as a very difficult question on which to reach a conclusion that is exactly just. I believe there is some value in formal logic, and yet I have often thought it might be well to embody under the psychological study of the understanding, nearly all we have in formal logic. There can be no question of the value of psychology. I noticed that the lecturer last night used "I" in the objective case. People do not apply what knowledge they have. I think there is often too much time given to the mere drill, or form, of what we call formal logic. I have no doubt about that; and when we use symbols and depend entirely upon the rules which are laid down, without looking into the reason of things, we get but very little out of it. I believe that too much attention is given to formal logic simply as an art. It is all good, but we do not expect to use it in an address. I think we may gain knowledge, value, and profit, if we rightly study logic

for the ability to interpret discourse as we listen to it. If we make it to be really a science, we can get considerable good out of it.

A statement from Prof. Demmon of the Committee on Entrance Requirements in English was ordered made a part of the record and is hereto appended:

Statement.

At the meeting of the college section last year I was appointed chairman of a committee to be made up of a representative from each of the colleges of the State, to take under consideration the wisdom of adopting a uniform requirement in English for admission. On taking up the subject recently, I learned that the Michigan Association of Colleges had already decided to accept the scheme agreed upon by the various English conferences of the Eastern and Middle States and of the North Central States. This action being in substantial accord with what we desire to do at the University, there seemed to be no further need of my proceeding with the matter.

Respectfully submitted,
ISAAC N. DEMMON.

HIGH SCHOOL SECTION.

This section was called to order with Prin. W. A. Greeson of Grand Rapids in the chair, and the first paper was upon

HIGH SCHOOL ATHLETICS.

PRIN. S. O. HARTWELL, KALAMAZOO.

My purpose today is to bring to your attention a few practical matters connected with athletic sports as they exist at present in our high schools rather than to discuss the more general question of their true position and value. But the subject in its broadest outlines deserves our careful thought, and one must at least establish a point of view before offering definite suggestions as to what one considers practical or urgent, at least where the wish is to impress these points upon other people.

To argue before such a body as this for the consideration of athletics, would be superfluous. The trend of all discussion in our work today is towards an application of the principle "*nil humanum alienum*" so strict that it is sometimes humorous. When, therefore, we find a question that appeals so deeply to the pupil's daily interest and so decidedly affects the schools, it is worth our while to try to discover its true place among the group of principles that make up our pedagogical creed—if we carry such "impedimenta."

I take it that our treatment of athletics will follow our interpretation of the "play-idea" so thoroughly exploited in the kindergarten. When its application shall have been worked out as carefully for the higher grades of our system, I believe we shall find our views on school athletics clearer, less a confusion of the observer's temperament with his observations than they are today; for the chief avenue through which the play-idea enters the life of our grades is athletics. For myself I am free to say that the value of school athletics is definite and unquestioned for both the boy and the school. It is an agency for physical and moral good to the boy, and may prove also a mental stimulant. For the school its power of promoting discipline and securing a helpful *esprit de corps* is not slight.

Many will not agree to so broad a statement of the value of athletics even in their best estate, and of course it is their best development of which I speak. I do not think it an exaggeration, but grant that for the moment. There is a point from which we cannot escape. We face "a condition, not a theory." Athletics are with us and will undoubtedly stay. We could not banish them if we would. To attempt it would seem to me a wanton rejection of great opportunities, but the attempt would surely fail. In the nature of the case we cannot prevent boys who are daily associated in the school room from uniting in their sport during leisure hours. We cannot avoid their making such sport systematic training for some special end, if they have the pluck and perseverance. We cannot prohibit their going on a holiday to some neighboring town, to try conclusions with a similar band. Only parents can forbid that, and you know as well as I the proportion of parents that would undertake it. I doubt whether we can even prevent their assuming to be a "school team." Some years ago, I am told, a foot-ball team left Ann Arbor to play as the team of the Ann Arbor high school, with a neighboring eleven. There was not a single high school pupil in the list of players. Influenced by experiences of which this is a striking example, the teachers of that school have concluded that the most feasible way to overcome such difficulties is to encourage and regulate athletics that are truly representative.

In view, then, of the undisputed fact that we must deal with athletics in some form, and secondly of what I consider no less true, the advantages that may result, I wish to urge the encouragement and regulation of high school athletics by the school men themselves. I shall not try clearly to divide the two things. They need thorough mixing and a proper seasoning with Attic salt. Encouragement without a definite effort to enforce the school point of view on the boys interested, would be to throw the reins to an enthusiastic but irresponsible driver. Not that a crowd of boys is inherently more foolish than the same number of men. That may be a fact, though it sometimes seems doubtful. But clearly no body of boys can feel that sense of responsibility which must appeal to men,—an appeal that is the most frequent corrective to general foolishness. Organized sport offers good chances to develop that sense in boys. But let us not over-tax them by shifting our burden also to their shoulders. When athletics rise to the dignity of a representative movement, two sets of interests must be recognized and must always be in harmony. On the one hand are the zeal and activity of the boys to get all the fun and all the glory that they can; on the other lie what may be called the corporate interests of the school as an institution—an institution of whose good name its officers and the public whom they represent are proudly watchful, an institution that cannot afford to countenance any uncertain methods—one that has or should have a policy that outlives the fleeting presence of any four years' class. To the boys, then, should be given the fullest responsibility for carrying out their own plans; let them learn wisdom from their own mistakes even, where those errors do not involve general interests. But if corporate rights are touched, if the name or fame of the school is involved, school officers should utter their opinions and should provide themselves with some way to make their opinions effective. So far as my experience is worth anything, it goes to prove that the students will honestly try to meet fair requirements of this sort.

I have thus outlined the kind of regulation that seems necessary. To apply it in an overbearing or critical way, would defeat its purpose.

Here, as elsewhere, the first point is gained if one can persuade his boys that their interests and, to a certain extent, their tastes are like one's own. Not that principals need to be foot-ball "cranks" or tennis enthusiasts. But just as truly anyone whom the sap and the memory of boyhood have so far deserted that he has no delight in the battles royal on the fields of sport, who feels no tingle in his veins at a goal from the field or a three-base hit, such a man ought not to be trying to direct the energies of a mass of boys. Some critics regard foot-ball as brutal, the other manly sports a waste of time. I hold no brief for a particular sport, although I believe in foot-ball. The last year has seen the game improved and it will bear further pruning, but that does not need to be discussed here. The point of view of this captious class is keenly, if somewhat robustly, satirized in Henley's lines:

'As like the woman as you can,—'
(Thus the New Adam was beguiled)—
'So shall you touch the Perfect Man,—'
(God in the garden heard and smiled).
'Your father perished with his day;
A clot of passions fierce and blind
He fought, he slew, he hacked his way;
Your muscles, child, must be of mind.'

* * * * * *

'Choose one of whom your grosser make—'
(God in the garden laughed outright)—
'The true refining touch may take
Till both attain life's highest height.'

'There, equal, purged of soul and sense,
Beneficent, high-thinking, just,
Beyond the appeal of violence,
Incapable of common lust;
In mental marriage still prevail—'
(God in the garden hid his face)—
'Till you achieve that female-male
In which shall culminate the race.'

The boyish athlete begins nowadays his public career very early. He finds plenty of "sporting gentlemen" ready to fawn upon him and deprave his standards. Let us, if we may, introduce him to the company of gentlemanly sportsmen; they breath an atmosphere that is healthy for the student and the scholar.

Perhaps this sounds too much like the "academic discussion of an academic subject." If so, I will be specific at once. The test of a principle lies in its application. Most of us, I hope, will confess to some interest in good sport; all will subscribe to the demand for honest sport. What can we do to secure either or both. In speaking strongly as to the value of athletics, let me not be misunderstood as overlooking the difficulties and occasional disgraces that they bring. Their worth has been urged that we may see a reason for taking time to regulate them; thoughtful control may be depended on to remove many troubles that now annoy us. There are dangers, it must be added, which promise to bring both athletics and our schools into bad odor unless they are averted.

In the first place we must have a sufficient organization to secure concerted action and an agreed standard on vexed questions. Many debat-

able points might be instanced. Those concerning the membership of teams are as pressing as any. The "good old days" when people stayed at home and undertook business as well as sport on a small scale and chiefly with daily associates, have passed. Organization and far-reaching combination are now the watchwords. Naturally they begin to dominate school and college sports. For we can hardly expect boys to be satisfied with simple home contests, when leagues, trusts, and conventions are governing the business acts of their elders, while brothers and sisters migrate yearly to San Francisco or Boston, New York or Washington, for the fraternal enthusiasm of Christian Endeavor gatherings. Shall, then, the selection of those quasi school-delegates, the members of athletic teams, be left wholly to the boys? Certainly not; there is too much at issue. For school protection we have a right to demand:

1. That no pupil shall pursue these organized athletics to the manifest sacrifice of his daily work. Athletics are an excellent avocation for a studious, growing boy, but the boy who makes them his *vocation* ought to lose caste as surely as does the amateur when he becomes professional.

2. Boys whose conduct is likely to bring disgrace to the school should not be allowed to represent it. We cannot forecast all such cases, but ought at least to have the power to prevent repeated offenses.

3. There should be no chance for that taint of professionalism which has blotted the athletic record of so many colleges,—the offering of various inducements to skilful players to become matriculated students, in order to recruit athletic ranks.

Those who have had experience with school teams know that these points must be met. They were brought quite forcibly to my notice during the last foot-ball season. To overcome them at home, I began correspondence on the subject with the principals of the schools whose foot-ball teams were to meet the Kalamazoo eleven. I found all the principals ready to coöperate, and discovered, too, that one or two schools had already taken action for self-protection. In the constitution, also, of the State High School Athletic Association formed last spring, the weaknesses mentioned were well guarded; but that body has jurisdiction over field and track athletics only. We have besides to deal with foot-ball—the most perplexing problem—base ball, and tennis. The association, moreover, covers only a limited number of schools.

Now these scattered efforts to assert a school standard will lose their force, unless they can in some way be gathered and concentrated to form a general standard. That might be secured by a league; but a league would be binding on none but its members, and there are, besides, strong geographical objections.

I submit that some such plan as the following is worth trying: Let this body, as best representing the high schools of the State, appoint a committee fairly representing the high schools of various size. The members of the committee should come from schools that already support some athletic organization. The members could associate with themselves some representatives of the student organizations in the schools. The committeee should then have power to formulate what we may call, for lack of a better name, a *State Agreement for High Schools*, covering the standards for membership of teams and such other points as in their judgment could be made matters of general agreement. For instance, in my opinion, no one pupil should be allowed to enter more than one kind of inter-school contest in a season. Greater detail is unnecessary, but other

points are sure to present themselves to a committee representing both the schools and the pupils.

Probably you are asking how an agreement of this sort is to be made effective. Frankly this general work is but half the task, but it is a necessary preliminary to more careful organization in our schools. If it be carefully drawn with both parties represented, we shall find little difficulty in securing its acceptance. The larger schools have already felt the practical need; most of them are ready to adopt any reasonable path that leads away from present vexations. The smaller institutions are not likely to object, if their athletics are thus put on an established footing. But even if some schools should distrust the plan, I believe that it would show such advantages in a season's working that dissenters would be glad to repent before a second year.

The student organizations must of course be persuaded to accept whatever plan may be formulated. Persuasion does not mean covert compulsion. There is naturally a chance for wide discrepancies of opinion as to details, but I am satisfied that the boys are just as ready for concerted action as we are. There have been enough inter-school contests already to arouse watchfulness between schools, sometimes suspicious jealousy. The boys have at least reached the point of wishing the other fellows to play fair; some, it is but just to say, have gone farther. But, under the present lack of system, there is much bother in learning the basis on which opposing teams are organized. This would be obviated under a general agreement, a fact which the boys will realize quickly. As proof of this, I am glad to say that the members of the athletic association in the school which I represent have already expressed themselves as unanimously in favor of some such plan.

After any such agreement shall have been accepted by the various school associations, some engine of enforcement is still to be devised. Here each school must act according to his own conditions. But the plan by which the Ann Arbor high school has solved its athletic difficulties, has worked so well and is withal so ready for general application that a brief outline will be suggestive. I quote from a letter by Principal Pattengill:

"For two years we have had a Board of Control of Athletics composed of teachers and representatives from the students. (There are three teachers and two students.) This board has absolute control over all athletic matters, including foot-ball and base ball; and no team can take part in any contest until the list has been passed upon by this board. The teachers have a majority, so that it is to be understood that every team that takes part in any game does so with the full consent of the teachers. Students who persistently neglect their work are not allowed to go with our team. By the rules of the Board of Education, disobedience to the orders of the Board of Control is classed as 'open disobedience or insubordination' and may be punished accordingly. * * *

We were practically forced into this arrangement by our circumstances. Our athletics were in a bad way so that we must either abolish or control. We chose the latter, organizing a board on the model of the University board. The results have been excellent. A more sportsmanlike spirit is slowly growing up among the students, so that it is becoming less and less necessary for the Board of Control to use its large powers. The student members of the board are a great factor in rendering its decisions acceptable to the students as a whole. Only once this year has the vote been

drawn on 'party lines.' One of our teachers recently remarked that the good accomplished in the case of one boy amply paid for the time spent by the board."

Besides the oversight of membership above described, the board acts as an auditing committee and considers the conduct of men on the trip. Last year it exercised its power of suspension in two or three cases with good effect. The system has other excellent features, as shown by their constitution. Mr. Springer, one of the members of the board, tells me that they hope to have this printed, so that any who are interested will soon have a chance to consult it. The weight of this illustration lies in the fact that it has succeeded. Some such system is needed, if we are to get the possible benefits from high school athletics.

One of the dangers that threaten us is inherent in all physical games, the other has special menace in educational institutions. These games employ physical force, arouse excitement, to some extent stir passion. If we leave questions that demand calm treatment unsettled up to the moment when passion begins to seethe, we risk much. If we can secure general action on the lines I have suggested, we shall remove several knotty points from the realm of heated argument.

In every school are a few men who are not mentally awake, who will neglect study, if possible, and are likely to take up athletics to gain some occupation that is fairly congenial. If their career is allowed to go on unchecked, they eventually lower the tone of the team and the school's standing. By adopting a general standard that considers scholarship, we may remove this menace also.

In conclusion let me return for a moment to general issues and add the strongest motive for action by the teachers. We hear much of the teaching of ethics. To my mind morality is comprised in honest, faithful work; in other words it is the recognition of one's responsibilities—to one's self, to society, to the "Power that makes for righteousness." Athletics form to some extent a branch of school activity; generally they give a boy his first conception of the thought that he is living on his own responsibility rather than under authority. If we leave him to assume the ethics of professional sport as his ideals, he makes a false start for which we are largely to blame. We may insist that no portion of his conduct is outside the dominion of the principles of truth and honor which are inculcated as the tests by which his tasks are judged. We may show by our active interest that we esteem uprightness and fair play as heartily on the play-ground as in the recitation-room. In so doing we are establishing firmer foundations for character than we can build by dozens of moral talks or appeals to religious sentiment.

DISCUSSION.

Opened by PRIN. E. C. WARRINER, Saginaw, E. S.:

The thing I had in mind during the reading of the paper, was what was said at last; viz., the greatest good that can come out of all athletic games. is their ethical relation. We are after honesty and good, and in no way can we better inculcate truth than through these games. There is an interesting discussion now going on in *Harper's Weekly*, a series of attacks and rebuffs concerning some of the Western Colleges—notably those of Minnesota and Michigan—in regard to the conduct of foot-ball teams during the past year, and the practice of hiring, as representatives of college athletics, men who are in no way connected with these colleges. Pres. Schurman of Cornell, is quoted as saying that there should be something better than mere winning of the

game. We ought to try to show that the manly thing is the manner in which it is won, not the winning itself. Now, as to the time for carrying on of these games, I want to enter an emphatic protest against the use of Decoration Day as a time for athletic contests. We are told that reverence for this day is fast passing away, and it is my belief that the high schools owe a duty to the community in helping to perpetuate it. I repeat that Decoration Day is not a proper time for holding these games. In order to get at something definite. I move that a committee of three be appointed by the chair for the purpose of drafting resolutions that shall express the sentiment of our high schools regarding athletics, as also to formulate rules for the regulation of these games.

SUPT. R. D. BRIGGS of Howell:

I am in hearty sympathy with both reader and speaker, and wish some concerted action could be taken by high school principals regarding this matter; therefore I support the motion and hope the committee may formulate a series of laws that shall be effective both in regulating teams as they are sent out and also rules applying to the games themselves.

The motion being carried, the following committee was appointed:—S. O. Hartwell of Kalamazoo, F. L. Bliss of Detroit, D. W. Springer of Ann Arbor, W. A. Greeson of Grand Rapids, W. H. Smith of Lansing.

UNIFORM COURSES OF STUDY FOR MICHIGAN HIGH SCHOOLS

PRIN. E. C. WARRINER, SAGINAW, E. S.

I propose to discuss two topics: Is it desirable that the high schools of this State have a uniform course of study; and if so, what should this course be? For three years past this has been the most fruitful subject of discussion at all teachers' meetings. So, while I have nothing new to offer, I am sure of a hearing, because no uniform course has as yet been adopted by any number of schools, and because all high school principals are interested in the framing of a course of study—the scaffolding on which they climb to their work.

The Report of the Committee of Ten is doing its work; it has provoked an endless amount of discussion and criticism, and it is for us here and now to gather up some suggestions, and, if we can agree on some foundation timbers, lend the influence of this meeting to their use. Under our present economy, the work of arranging a course of study belongs to the board of education. Its members, not being experts in educational matters, are apt to be led by professional training and feeling, by early prejudice, by the influence of some enthusiastic specialist, to lay stress now upon one branch of study, now upon another. The board should defer to the hired teachers in the arrangement of a course of study, and the teachers should bring to this study a mind free from bias or prejudice, a knowledge of the laws of mind growth and activity, and some years of practical experience in the kind of school for which the course is designed. If my favorite study is biology, I shall be inclined to give undue prominence to the study of natural science; language and literature will be slighted. Nothing is more striking in the report of the Committee of Ten than this, that each conference had the highest faith in the efficacy of its own subject; and the committee, in trying to satisfy the demands of all, crowded too much into its suggestive programs.

Psychology has more for the primary teacher and for the primary course of study than for the high school, but high school teachers too commonly resent psychology and any reference to it as an impertinence. But the

results of the growing science of child study will be valuable for all educators from the lowest to the highest. We of the high school shall know better what course a boy should take; we shall know how long he should take to complete his high school course, where the hard work should be and where the easy, how much work a boy can do without rest; we shall know better what to do with pupils who have deficient eyesight or hearing. A course of study cannot be made by a know-nothing in psychology. Some expressions in the report of the Committee of Ten give the impression that a program of studies is a matter of comparative indifference; that if four years are spent in study, it matters little what is studied. But this idea was disavowed in the very report by one member of the committee, and has provoked so much hostile criticism as to prove its weakness. The course of study is worth, then, all the discussion it has aroused and all it will arouse, just as the arrangement and equipment of schoolhouses is deserving of the most careful study; but neither a well-equipped schoolhouse nor an approved course of study makes a school. They are but "appurtenances thereunto belonging," empty and void without the powerful teacher to use them.

It is required of us now, before deciding whether high schools should have uniform programs, to ask what the high school is, what its purpose, what its place in the educational system. The high school is not primarily a fitting place for college. This, however, is not saying that it may not and should not prepare boys and girls for college. It may do so and should do so, but it has other demands upon it than this. The number of our graduates who go to college is still but a fraction of the whole number. The number is increasing, however, and even now 33 per cent of our Michigan high school graduates pursue studies beyond the high school. If 33 per cent of our graduates actually continue their work beyond the high school, plainly this per cent may be taken into the account in determining what the course of study shall be.

I may pause here long enough to say that this gratifying condition of affairs in this State is due almost entirely to the intimate relation that has subsisted for the past twenty-five years between the University of Michigan and the high schools of the State. Not only has the influence of the University been felt by all the educational institutions of this State, but the educational impulse of the whole west has come from the University of Michigan; and, while it may perhaps be said, to the shame and short-sightedness of our State, that some other western states are dealing more liberally with their State universities in these latter days, yet it must always be remembered that the University of Michigan marked out the way, laid a foundation of deep scholarship and noble ideals, and continues to lead the van in the learning of the west. This result must be put down to the honor of three men; to President Angell who, during twenty-five years of administration, has lifted up the University and education in such a way as to make it possible to call him the most successful college president in the country, whose close sympathy with the high schools of all classes, whose earnest efforts to make the University serve all the people, cannot be questioned by one who knows him,—to President Angell, and to two other men of hallowed memory, the spotless Dr. Frieze and the noble Professor Olney, are due the inception of this lofty scheme for uniting school and college.

I have noted in our educational gatherings the last year or two, a tendency to make light of what are called the demands of the University

upon the high schools; and those principals and superintendents who have been most zealous to satisfy these demands, are looked upon in some quarters as narrow and small, if not really wrong in their desires. But it will be a long step backward when our high schools forget to look to the University for their criterion, and instead labor to satisfy the popular demands of the neighborhood. We must look up to the hills, for it is thence our help cometh. Let us raise the community up to our level rather than step down to the commercial level on which they would have us run. Nothing has made our high schools take their proud position abreast with or in the lead of the high schools of every state of the union, but the constant aim to arrange a course of study which should articulate with the courses of the University; to equip the schools with sufficient apparatus to do this fitting work properly; and, above all, to provide for the school teachers of scholarly tastes and attainments, familiar with the spirit and ideals of the University, desirous to advance education in our midst by leading the youth in their charge to thoughts of the heights above. These teachers have come forth from the halls of the University of Michigan, and it is supremely in this respect, in equipping our high schools with its own graduates, that the University has done its service to the State.

Within the past month it has been publicly argued by a professor in the University that the diploma relation has been extended too far, to too small and ill-equipped schools, and that the system of school inspection now in vogue needs revision. This last contention is probably true. Sets of examination papers, prepared under the University's direction, may furnish a better means of judging of the quality of a school's work than a day's visit once in three years by professors of various ideals. Certainly we must not object or seem to object to setting our pupils any examination required as a partial means of testing the work of the school and the proficiency of our pupils; but a written examination is a test with serious limitations, and I am but quoting President Angell in saying that a principal who has had a four year's knowledge of a pupil is a better judge of his power to do college work than a brief examination. But the visitation of schools by University authorities ought not to be altogether discontinued. Formerly the visit of the University inspectors was made an educational event in the community. Why may it not be so to-day, and the interest of the public maintained as it has been stimulated, in our high schools and in higher education?

But that the extending of the diploma relation to the medium-sized and smaller high schools has been injurious to scholarship in the University, harmful to any high school, or discouraging to education in general, I cannot believe without more convincing proof than has yet been furnished. Large cities in any state will have good high schools. The larger cities of Illinois have good high schools, but the high schools of smaller cities of 5,000 and under in Illinois are not comparable to the corresponding grade of high schools in Michigan; and this is due to the earnest endeavors of the small cities to make their high school graduates worthy of admission to college doors. It may be true that a small high school sends but one or two graduates to the University in three or four years; it may be granted, for sake of argument, that it never sends one. The uplifting and beneficent influences of the University are by no means lost upon the ninety and nine who are denied the satisfaction of the higher education. I am not in favor of lowering the tone of scholarship in our

University or any where. We need constantly and everywhere the upper tendencies to keen observation, to powerful memory, to discriminating judgment, to breadth of thought, to independent research, to philosophic views of life. These things which make up an education, find their highest exemplification in this State at the University; but they are not to be confined to the State University,—to the favored few who may dwell a few years on the banks of the Huron. These broad and broadening views of education ought to permeate the whole system of our State and nation. How can they do it unless the University, by its graduates sent down, and the high schools by their graduates sent up, are in the closest accord and sympathy. Were it not recognized that graduates of our small high schools were eligible to the University of Michigan, we should still be working on low planes and with low ideals, studying Latin not at all, science not at all, or at best without a laboratory, and with teachers whose education had been completed in the high school. But for a quarter of a century now, under the immediate guidance of President Angell, the University has set for itself, as a duty to the State, the strengthening of the weaker schools as well as the stronger, until now eighty-one high schools of the State are able to prepare their pupils for one or more courses of the University. When this is considered, with the number of able men and women these schools have sent out, not only to the University, but into life, who shall say that the policy of our University has been unwise?

But I have nearly proved the opposite of my proposition, that the high school is not a fitting school for college. The high school does not exist for the University of Michigan, but for the people. I have but prepared the way to defend the deference which we show to the University in making up our programs. If the high school is not a fitting school for college, no more is it a fitting school for all the trades and occupations of every-day life. Between the demand of the college, on the one hand, that the high school course be made out in strictest conformity to its requirements, and the demand of the public on the other that every boy and girl be thoroughly furnished to earn his daily bread, we must find a *via media*. The former demand finds its expression in the thought of a principal of one of the leading high schools of the State, who was quoted as saying that the classical course should have nothing of civil government, because it was not required for admission to the University. Of all the demands of the public for practical education, of all the senseless tirades of the Chicago press against fads, I have seen nothing more amusing or short-sighted than the following clipping from a Michigan newspaper of recent date.

"An agitation has been started in the east for the benefit of those who must earn their first dollars in the stores. The number of clerks exceeds the number of professional men many times over, and yet nothing is done in the schools for their especial instruction. Scarcely any of the young people entering the mercantile field know the first rudiments of business. Singing, calisthenics, and cooking are all right in their place, but the question is, would not a little business instruction be a great deal better? To sell goods is a hard thing, though it looks easy. There is a trick in saying 'This is a stylish fabric,' and not make it sound cold, frigid, and half-hearted to the customer. A person might be able to rattle off Latin or Greek by the hour and not know how to make a customer think that

the clerk waiting on him is one of the most agreeable he ever met. It is a trick to keep stock looking nice—a trick not learned in a day or a week. It is still another trick to dress in a store so that the clerk will look neat and not loud. Loud dressing is repulsive in a store. The eastern agitation is extending westward and the idea is fast spreading that the schools should do something for the business students."

From the implication here made that it is the business of the schools to teach boys and girls the palaver of the retail clerk and to say that a coat is stylish and all wool when he knows that it is three seasons old and shoddy, we cry, "Good Lord, deliver us!"

In moments when our fondness for analogy conquers our best judgment, we sometimes say that the high school is the people's college; but I have never heard the high school called the people's university. It is said, however, that the people pay for the high school and we must give them what they want. The better way is to teach the people to want higher things, to appreciate what the difference is between an education and an apprenticeship. It may be necessary and wise for us to provide courses in book-keeping and manual training in our regular high schools, but this is not the main or legitimate function of the high school. If these courses can be educative, if they can conduce to keen observation, to powerful memory, to vivid imagination, to discriminating judgment, to accurate reasoning, to breadth of thought, to independent research, to philosophic views of life, they may well claim a place in any high school course. But book-keeping and manual training do not contribute to these ends so much as some other studies, and therefore they cannot claim the first place in our course. It is the experience, I suppose, of all principals that these courses are the catch-all, that they are sought by the weakest students, and that the results obtained in them are not commensurate with the results obtained in other courses. These easier courses may be defended on the ground that they hold in school, a year or two longer, some pupils who would otherwise leave school. Every teacher ought to be of such honest worth and genuine integrity of character and morals that his association may be an inspiration to his pupils, whether their minds are trained or not. But this, while of the greatest importance, is really an incident of the school. It does not exist avowedly for the teaching of morals; and, while it is perhaps the most powerful moral agent of the day, we must make a course of study on other premises.

The people's college is a characterization of the high school which has gained much currency, but this implies a great breach between the primary and grammar school and the high school—a breach certainly never intended and which should be closed up by our courses of study as rapidly as possible. The custom of graduating pupils from the eighth to the ninth grade, has done much to lead people to believe that the high school is another system, and not a part of one system; but the great difference in studies pursued has done more. Even now we are uniting the grades more closely by the introduction of algebra and geometry into the lower forms, and by the suggestion that the study of Latin be allowed to take the place of English grammar.

The high school is but the proper continuation of a training begun in the kindergarten. Public opinion has come to agree that twelve years should be spent in the public free schools, and so has provided studies for these years. For convenience these twelve years are divided into the primary, the grammar, and the high school departments; and a boy should

no more think of ending his school with the grammar department than with the primary. Sickness or want of money will unfortunately require some to discontinue their school life before completing the twelfth grade, but these are the only causes which should be recognized by parents and the public as legitimate to detract from high school attendance. The compulsory school law has not gone thus far, it has not required twelve years of school attendance. Probably it will not. Indeed, the effect of these high school years will be good in proportion as the attendance is voluntary and eager.

The high school, then, being one with the grammar school in kind, if not in degree, the work of the high school is the work of the grammar school, and this is the work of any and all education, namely, to prepare boys and girls to live happy, useful lives. This is old, I know, but it is true; old to the educators, but ever new to the educated. We have each year new lives to deal with, new minds to inform. Happy, useful lives—the two are synonymous; the happy life is the useful life; the useful life is the happy life. This is my last argument when I have run the gamut in trying to save to the school some boy or girl who has early become surfeited with something or nothing, and who is bent on turning the back on the schoolhouse,—"Your life will be happier the more your powers are trained to useful activity."

This is the business of the school, I repeat it again,—to make keen observation, vivid imagination, powerful memory, discriminating judgment, accurate reasoning, broad thought, independent research, philosophic views of life. This is the business of the primary school, of the grammar school, of the high school, of the college, of the university, differing in degree, in amount, not in essential aim. The high school has charge of making these powers during the life of the child from fourteen to eighteen, and the question of a course of study for the high school becomes a question of what studies will best develop the powers of mind which call for development during this period, the powers, I think we shall say, of judgment and reasoning. The observation, imagination, and memory are always to be regarded, but pre-eminently in the primary and grammar grades; so are judgment and reason always to be kept in view, but they stand out boldest in the high school period; independent research and philosophic views of life are the province of the college and of the University.

Having now found what the high school is and its place in the educational system, we inquire, "Shall the course of study be uniform in the high schools of Michigan?" If we agree that the high school is for training the judgment and reason, and if the mind of all pupils is essentially the same, would it not seem *a priori* that there would be a large degree of uniformity in the studies selected to accomplish this end? Would it not seem that, from the experience of years, men would reach the same conclusions as to what would effect the best result? It is well recognized that the primary and grammar schools have all the same end in view, and consequently there is a good degree of uniformity in their courses of study; they all teach reading, writing, arithmetic, spelling, grammar, geography, history. Why do we find such diversity when we come to the high school? Is it not that the function of the high school has been differently conceived? If all admitted the same premises, would not all conclude the same high school? Men see, however, through different eyes; and, while we shall find a general agreement on a plan, the detailed

working out of this plan will hardly be the same by any two men. As has been said, early training, natural bent, the force of environment, account for these differences; but I think we shall find some fundamentals to which all will agree.

Why, then, do we defer so to the University of Michigan in this State, when we come to make our course of study? Not only because thus we satisfy her requirements for admission, but because what best fits pupils for college, best fits those who do not go to college for a useful and happy life. One of the questions asked by the Committee of Ten of the conference, was, "Should the subject (of the conference) be treated differently for pupils who are going to college, for those who are going to a scientific school, and for those who, presumably, are going to neither?" The answer of committee and conference was unanimous, "No," which means that preparation for college is preparation for life. I have tried to show that school and college have a common end, and if a common end, their means of reaching this end should be the same.

Another function of the high school under existing conditions, seems to be the preparation of teachers for primary and grammar school work. The same principals who reported to me that 33 per cent of their graduates go to college, further reported that 32 per cent of them become teachers. What course of study will best fit these persons to teach? I answer again, leaving out any account of professional training in psychology and pedagogy, the best high school training for prospective teachers is the best training for prospective college students and for prospective business men. A young lady said to me last week, "I must go to teaching next year. What studies shall I take?" and I could suggest nothing better than that she put herself in line with one of our regular courses.

I say then that the high school course should be in general uniform, and that in this State we may well be guided by the requirements for admission to the University of Michigan. It is not possible or wise to impose from without the same course upon every school; the actual arrangement of the time and place of a certain study in a four years' schedule will be different by different men, although there is substantial agreement as to the value of the work. One principal will complete algebra in the tenth grade, one in the eleveth, another in the twelfth, although all agree on the whole amount to be assigned; but we may and should agree on the best subjects to study and how long to study them.

I have left little time to speak of what this uniform course of study should be; and indeed it is not necessary for me to speak of it, since we are fortunate in having before us a very admirable course of study reported by the committee appointed for this purpose a year ago. This course of study is most admirable for its intensiveness, made evident, first, in the small number of recitation periods per week; secondly, in proposing few subjects to study; thirdly, in continuing each subject long enough to give a culture value. Our tendency is to try to accomplish too much along the many lines. Twenty recitations a week, as proposed by the Committee of Ten, are too many by five, unless indeed these five be unprepared, a sort of recitation the value of which is doubtful and its relief at best but slight. Our committee proposes sixteen recitations per week for the first three semesters, seventeen for the fourth, and eighteen for the last four. This is a great improvement over the national committee's suggestion, and would, I think, be even better were no pupil required to have more than seventeen recitations in the high school course.

The statistics from Michigan high schools, to which I have heretofore referred, say that the ratio between the entering and the graduating classes is 3 : 1. Every high school principal knows how discouraging is the loss of ninth and tenth grade pupils. This is due in large part to the great amount of work required of ninth grade pupils, and the method of teaching compared with the methods of the grammar schools. The system of special teachers, while necessary in some degree, is responsible for much of the disheartenment and failure in the first weeks of the high school course. A special teacher of algebra, a special teacher of Latin, a special teacher of English, each eager to have his own work done best, ignorant of the demands made upon the pupil's time in other departments, careless of the great change in a pupil's habit of school life on entering the high school, conspire to overload the pupil in his first days of unacquaintance and embarrassment. Add to this the large session rooms where pupils are herded in droves, with the indifference too often shown by high school teachers, and it is not difficult to account for the loss of many good pupils.

All this cannot be remedied by a course of study, but a beginning can be made by reducing the number of recitation periods to sixteen. This our proposed course of study does. It also omits the subjects proposed by the Committee of Ten, of German, chemistry, and trigonometry from the classical course, and astronomy, meteorology, geology, and physiology entirely. This it seems to me is wise. The high school is not a university, and more harm than good must come from a dip into all the ologies rather than an intensive study of one or two. The Committee of Ten, in their earnestness to satisfy everybody, well nigh outlined a "Catholepistemiad," as the first draft called the University of Michigan.

Our proposed course is refreshingly free from optional studies, which have little or no place in a high school program. Four courses may be maintained; and, when a choice has been made among the courses, a pupil should follow the guidance of his teachers and the curriculum, and not be allowed to choose and substitute this for that even to confusion. In each course outlined is found one optional three-hour study, and in the English course one optional five-hour science besides. These might well have been filled out, it seems to me, at least the three-hour course, with work in history. Physics and botany are required for all courses in conformity with the requirements of the University; and besides these, chemistry is prescribed for the scientific and English courses, together with an optional science for the English course. A detailed criticism of this report might suggest some other changes. Why should English grammar be taught in the ninth grade? Why should United States history and civil government be omitted from the classical course? But this is not the place for particulars.

In one of a series of statistical articles which have recently appeared in Harper's Weekly, Mr. F. W. Hewes shows, in the issue of December 7, 1895, by an ingenious diagram, the relative proportion of students pursuing the various studies in secondary schools. Algebra heads the list, 48 per cent; Latin stands next, 39 per cent; physics, 25½ per cent; geometry, 21 per cent; German, 15½ per cent. The Committee of Ten proposes, for the classical course, that the most time be given to Latin, the next largest amount to English, the next to history, the next to algebra, the next to geometry. Our Michigan committee gives in order,—Latin, English, algebra, geometry, history. Here is real agreement. Without entering

into argument to prove that these studies train the judgment and reason, our inquiry seems to be answered:—a course of study in its general outline, uniform for all high schools, is desirable, and we have such a course in the report of a committee of this Association.

DISCUSSION.

PRES. GREESON opened the discussion of this paper by stating a desire for an expression of opinion regarding the value of fractional courses, and also as to the desirablity of a high school course which requires no foreign language.

SUPT. M. A. WHITNEY of Ypsilanti:

I have found it a little difficult to make comparisons of requirements, since some are definitely stated as to amount and time, while others are stated only as to amount. Taking the University of Michigan as a standard, because her requirements are definitely stated as to both time and amount, in most cases we can make a very just comparison.

Nearly all the colleges named require about the same amount of Latin. Harvard states her requirements as elementary and advanced, so I have not added an additional number of hours to the 800 for the advanced requirement. The same may be said of Greek. Most of the colleges mentioned give an option of either French or German. Harvard requires a certain amount of both. One year in each would, I think, satisfy the requirement.

In algebra there is not a great diversity of requirements. Harvard requires only the elementary which may, I think, be satisfied by one year's work. The advanced is elective. In all other cases I have allowed one year and a half.

The University of Michigan is the only one of the colleges mentioned that has an absolute requirement of both plane and solid geometry. In schools that send students to the University of Michigan, one year is given to this subject. I have deducted only fifty recitations for solid geometry from the requirements of the colleges that do not ask for solid geometry. Perhaps seventy-five would have been more nearly its proportion of time.

In English literature about the only requirement of any college is on the books recommended by the Association of Colleges and Preparatory schools. I have allowed 100 recitations for this work. In addition to this work or rather, instead of it, the University of Michigan requires in two courses a full year in English literature.

In English the University of Michigan specifies "daily recitations for at least two years;" and in some courses rhetoric in addition, I think, is expected. I have allowed two full years for general English work, taking it for granted that this would meet the requirement. In the other colleges, I think the requirement can be met with one year's work in general English, and by this, I mean grammar, composition, etc. No formal rhetoric is required except by the University of Michigan.

And one of the colleges specifies arithmetic as a requirement, but I have put down a half year of it for all.

Only two, Harvard and the University of Michigan, specify physics. Harvard has an elementary and an advanced requirement. I think the understanding is that a half year's work will satisfy the elementary requirement, and a year's work the advanced. The University of Michigan requires a year's work in all courses (from some schools).

The University of Michigan is the only one which specifies botany one-half, and chemistry one-half. The requirement in General or Greek and Roman history is very general. I have allowed one full year for this work.

American history is required by the University of Michigan in two courses and by Cornell. In Cornell the requirement would probably be satisfied by the course in the grammar grades in Michigan schools. In the University of Michigan a half year's work is required in two courses. A year's work in English history is required by the University of Michigan in one course. (Perhaps I ought not to mention this, as it is in place of some other work in other courses. I have not mentioned all the electives offered by all the other colleges.)

The same may be said of civics.

Cornell is the only college that requires physiology.

I have allowed 100 recitations for reviews in the elementary branches. These are specified only by the University of Michigan, and perhaps I ought not to have entered them under each.

It will be seen that the University of Michigan requires more hours than any other of the five leading colleges.

I draw no conclusion from the foregoing comparisons. If they are at all suggestive, draw your own conclusions.

The following is a resume of work required by the five leading colleges of the United States:

Subjects.	Hours required.							
	University of Michigan.				Harvard.	Yale.	Cornell.	Princeton.
	Classical.	Latin.	Scientific.	English.				
Latin	800	800	400	.....	800	800	800	800
Greek	400	.....	.....	.....	400	400	* 400	400
German	.....	400	400	400	200	200	.....	200
French	.....	*	*	*	200	.....	.....	.....
Algebra	300	300	300	300	200	200	200	200
Geometry	† 200	† 200	† 200	† 200	‡ 150	150	§ 150	150
English	400	400	400	400	200	200(?)	200	400(?)
English Literature	100	100	200	200	100	100	100	100
Arithmetic	100	100	100	100	100	100	100	100
Physics	200	400	200	200	100	.....	.....	.....
Botany	100	100	100	100	.....	.....	.....	.....
Chemistry	.....	.....	200	200	.....	.....	.....	.....
General History	200	200	200	200	200	.....	‖ 200	.....
Ancient History	.....	.....	.....	.....	.....	200	.....	.....
American History	.....	.....	100	100	.....	.....	100(?)	.....
English History	.....	.....	.....	200	.....	.....	.....	.....
Civics	.....	.....	100	100	.....	.....	.....	.....
Reviews	100	100	100	100	100	100	100	100
Physiology	.....	.....	.....	.....	.....	.....	100	.....
Totals	2,900	2,900	3,000	2,800	2,750	2,550	02,55	2,550

* Or German.
† Plane and square.
‡ Plane.
§ Some equivalent.
‖ Greek or Roman.

PRINCIPAL HAMILTON KING of Olivet:

As a member of this committee on course of study, I would ask you to give full expression to your ideas. By reference to the printed outline you will see that a year is given to United States history in two of the courses, while in the other two no time at all is given this important study. I know it is the desire of the committee, as probably of you all, to find a year for it in all of the courses. It seems a shame to send men to college prepared for the classical or the Latin-scientific course, without any study of United States history; but we did not decide to put it in these two courses, because we feared we should not be supported. I would like to ask a question. It has been said that the U. of M. is the only reputable college that requires botany; and, though botany is a desirable study, I would ask if it is as essential a thing as is United States history or civil government. In other words, is United States history of sufficient importance in the high school to cause us to sacrifice botany and some of the optional studies for its sake? As far as botany is concerned, I think the sentiment of the eastern colleges is that they prefer to open up that subject themselves, without

having the edge first taken off by unscientific teaching in the secondary schools. One other thought—is it not possible to put aside solid geometry for the study of United States history? I had thought the committee might arrive at something definite by a full discussion along this line.

Notwithstanding the anxiety shown by the committee for a discussion of these points, most of those present seemed unprepared to express a definite opinion and the next paper was taken up.

THE NORTH CENTRAL ASSOCIATION OF COLLEGE AND SECONDARY SCHOOLS.

PRIN. F. L BLISS, DETROIT.

The North Central Association of Colleges and Secondary Schools was organized at the Northwestern University, Evanston, Illinois, March 29, 1895. The movement leading to the formation of the Association originated at a meeting of the Michigan Schoolmasters' Club held at the Michigan State Normal School at Ypsilanti, December 1, 1894. At this meeting a resolution was offered by Principal W. H. Butts, of the Michigan Military Academy, and adopted by the club, that the presidents of the University of Michigan, the University of Wisconsin, the Northwestern University, and the University of Chicago be asked to unite with a committee of the club in issuing a call for a meeting to form an Association of schools and colleges in the North Central States.

In accordance with this resolution, Presidents Angell of Michigan, Adams of Wisconsin, Rogers of Northwestern, and Harper of Chicago, united with a committee consisting of Principals Butts of the Michigan Military Academy, Greeson of Grand Rapids High School, and Boone of the Michigan Normal School, in issuing a call to a meeting at Evanston on March 29, 1895. The response to the invitation showed that there was a general interest in the object of the meeting and that the importance of a closer union between colleges and secondary schools is appreciated. The following delegates were present at the meeting:

Ohio.—President W. H. Scott, Ohio State University, Columbus; President Charles F. Thwing, Western Reserve University, Cleveland; President William G. Ballantine, Oberlin College, Oberlin; President James W. Bashford, Ohio Wesleyan University, Delaware; Principal Edward L. Harris, Central High School, Cleveland.

Michigan.—President James B. Angell, University of Michigan, Ann Arbor; President Lewis R. Fiske, Albion College, Albion; Principal Frederick L. Bliss, Detroit High School, Detroit; Principal William A. Greeson, Grand Rapids High School, Grand Rapids; Principal William H. Butts, Michigan Military Academy, Orchard Lake.

Indiana.—President Joseph Swain, Indiana University, Bloomington; President George S. Burroughs, Wabash College, Crawfordsville; Professor C. A. Waldo, De Pauw University, Greencastle; Superintendent J. W. Knight, La Porte.

Illinois.—President Andrew S. Draper, University of Illinois, Champlain; President Henry Wade Rogers, Northwestern University, Evanston; President William R. Harper, University of Chicago, Chicago; President John M. Coulter, Lake Forest University, Lake Forest; President John E. Bradley, Illinois College, Jacksonville; President W. H.

Wilder, Illinois Wesleyan University, Bloomington; Augustus F. Nightingale, Superintendent of High Schools, Chicago; H. H. Belfield, Director of Chicago Manual Training School, Chicago; John J. Schobinger, Harvard School, Chicago; George N. Carman, Dean of Morgan Park Academy, Morgan Park; Superintendent Newton C. Dougherty, Peoria; Principal Henry L. Boltwood, Evanston High School, Evanston; Principal Charles A. Smith, Lake Forest Academy, Lake Forest; Principal H. E. Fisk, Northwestern Academy, Evanston.

Wisconsin.—President Charles K. Adams, University of Wisconsin, Madison; President Edward D. Eaton, Beloit College, Beloit; President George S. Albee, State Normal School, Oshkosh.

Iowa.—President Charles A. Schaeffer, State University of Iowa, Iowa City; President William F. King, Cornell College, Mt. Vernon; President Homer H. Seerley, State Normal School, Cedar Falls.

Missouri—President Richard H. Jesse, University of Missouri, Columbia; President Winfield S. Chaplin, Washington University, St. Louis.

A constitution was adopted, one or two extracts from which may be of interest here.

ARTICLE II.

The object of this Association shall be to establish closer relations between the colleges and the secondary schools of the North Central States.

ARTICLE III.

SECTION 1. The membership of the Association shall consist of such colleges (or universities) and secondary schools, together with such individuals as may be nominated by the Executive Committee and elected by the Association.

SECTION 2. The representation of higher and of secondary education shall be as nearly equal as practicable.

Other articles concerning officers, meetings, membership fee, etc., are of the character usual in associations of the kind.

The Association was formed with a charter membership of thirty-six, including the institutions invited to the meeting and represented by delegates there. President James B. Angell of the University of Michigan was elected president; Principal Frederick L. Bliss of the Detroit High School, secretary; Dean George N. Carman of Morgan Park Academy, now director of the new Lewis Institute of Chicago, treasurer. President C. K. Adams of the University of Wisconsin, Professor Clarence A. Waldo of De Pauw University (now of Perdue University), A. F. Nightingale, Superintendent of Chicago High Schools, and Principal Edward L. Harris of the Cleveland Central High School, were elected to serve with the three officers as members of the Executive Committee.

After some informal discussion of various educational matters, the Association adjourned. At this meeting, about all that was accomplished was the perfecting of an organization. The Association began its career with thirty-six charter members. It is quite significant that such general interest in the meeting was shown by the colleges asked to send delegates. Aside from Minnesota, Nebraska, and Kansas, the leading higher institutions of the ten states included in the invitation were represented at the

meeting. The representation from the secondary schools was not so encouraging. The attendance at the meeting, however, shows that the importance of such an Association is recognized.

A special meeting of the Association was held at the University of Michigan, November 29. At the meeting 84 institutions and individuals were elected to membership. If all accept, this will bring the total membership of the Association up to 120. The first regular annual meeting of the Association will be held at the University of Chicago about April 1, 1896.

The object of the formation of this Association is stated in the constitution to be "to establish closer relations between the colleges and the secondary schools of the North Central States." We of Michigan know how much of good has been accomplished by the Michigan Schoolmasters' Club, which has had for Michigan an aim similar to that of the new Association in its wider area. The most important associations of a like character are "The New England Association of Colleges and Secondary Schools" and "The Association of Colleges and Preparatory Schools of the Middle States and Maryland." The former was organized at the Boston Latin School, October 16, 1885; the latter was organized at the University of Pennsylvania in July, 1888, as an outgrowth of the College Association of Pennsylvania, organized in 1887. One has only to study the proceedings of these two associations to realize the possibilities for good resulting from such organizations. The most prominent school and college men of the east have taken part in the discussions at the meetings of these associations, and the discussions themselves have generally been of an eminently practical character. President Angell recently spoke of the business like character of the proceedings of the Michigan Schoolmasters' Club. He remarked that it had spent little time in discussing the question whether education was a desirable thing or not, and had usually got some eminently practical subject and discussed it in a practical way. The same has been true of the two eastern associations mentioned. Their published proceedings are very valuable contributions to the educational literature of the country. Special committees of these associations have investigated special questions and have made reports of great value. One of the most interesting of these reports was that made at the last meeting of the New England Association on the course in history for secondary schools.

The North Central Association has an important mission. The states represented are dotted over with institutions calling themselves colleges, or using the more ambitious name of University, many of which in equipment, in strength of faculty, and in course of study, are scarcely the equal of the best of our high schools,—"colleges" granting academic degrees, which admit students absolutely without a day's preparation in secondary school studies. It is to be regretted that under our system of government it seems impossible to exercise any direct supervision over institutions such as these. If we could have some national meaning for the words university and college, each implying the fulfillment of certain conditions, then the sham college or university could be relegated to its proper place among the more or less excellent secondary schools.

But without this central authority, it must remain for associations such as the one just organized to establish a standard of education for the university, the college, and the secondary schools. This will be one of the most important missions of the North Central Association. From the

tone of the discussions of the Association it is clear that membership in the Association will imply genuine work in the institution represented, either in the department of higher or in that of secondary education. It is probable that membership in the Association of an institution will be for it a certificate of educational respectability, if not of educational distinction.

Another important work for the Association will be to seek for uniformity of college entrance requirements, and thus to aid in securing something like uniformity in the work of the secondary schools. At present, many colleges seem to think their chief ground for distinction lies in the eccentricity of their admission requirements. A college would be supposed to lack individuality if, perchance, its requirements were found to be identical with those of any other institution. While the chief aim of our high schools is, of course, not preparation for colleges, it is a very important part of their mission. The work of these schools will be unified and strengthened when colleges come to something like an agreement on entrance requirements.

But whatever else it may indirectly accomplish, the chief mission of the new Association must be that stated in its constitution, "to establish closer relations between the colleges and secondary schools of the North Central States." Both the school and the college will profit by the better understanding of each other's aims and ideals that will come from these "closer relations."

ANALYSIS OF THE ENGLISH SENTENCE.

PRIN. STEPHEN HERBERT LANGDON, IDA.

The subject of sentential analysis occupies a unique position in the history of grammar. As a technical study it belongs almost entirely to modern scholarship. The idea of analyzing from a sentence as a unit seems to have belonged to the subjects of ancient sophists and rhetoricians. Grammatical analysis consisted chiefly in the criticism of etymological forms and the various relations of syntax. The precepts scattered so abundantly throughout the rhetorical works of Cicero, show that ancient grammar and rhetoric were upon the true shift, which modern scholarship has carried on in many good directions and many totally false. The subject of philology has produced beneficent results which are the pride of our own times. The materials of grammar are in a very satisfactory state, but the efforts to connect these with practical results in education have had a varied history.

The common school grammar today embodies about the same scope as those of the 16th century; one new feature only has been developed, namely, sentential analysis. Written analysis was originated in England; diagrams are a distinct American invention. Dean Swift complained about the defective state of grammar in his day, whereupon Dr. Lowth in 1775 published his grammar, which, as far as I can ascertain, first promulgated a system of written analysis. Among English editors this system has been a favorite in school grammars; and their development of the method of arranging words in parallel columns according to their function, is a direct outgrowth of this. The works of Lindley Murray, published at the beginning of the century, gave a wonderful impetus to study in

this country, but show no signs of new treatment. As many as fifty grammars came out between 1800 and 1860, all of which present forms for written analysis.

In 1859 Henderson published a work in which he attempted to present the relation of words to the student's eye. He seems not to have had a very definite idea, and the attempt appears on only one page of the book. The illustration here is copied directly from his book:

He steered his noble bark far away.

In the next year a work of Green's appeared, in which the origin of diagraming is visible. He divided the subject with all its modifiers from the predicate with its modifiers, and contrasted them by writing them on lines. In 1864, Dr. Clark of New York, published the first book which contained a systematic system. Although he claims to be the inventor, it is clear the idea did not owe its complete origin to him, as Athena sprang full grown from the head of Zeus. Since that time about one hundred books have been published and about twenty-five new forms of diagraming have appeared. It is against all this mass of material that infects school books, both past and present, that this article is directed.

It would be safe to say that the idea has been worked for all it is worth, and has reached a state of development where we can gather data enough to decide its merits and failures. The very fact that no other lanugage has attached such a feature to its grammar, would lead one to be suspicious. Outside the fact that it is important to *see* grammatical structure, our language lends weight to the theory in being void of inflections. The authors of these schemes, seeing the learner has not the advantage of endings to see the structure of sentences, sought to remedy that defect by actually placing the connection before his eye. The pedagogical reason assigned for this, is to enlist the eye to the efforts of the mind. For instance, if it is a help to draw a figure in the demonstration of a theorem, the conclusion is assumed that it would do the same service in a sentence. Truly, the only way to arrive at the truth is to work a theory for all it is worth; but the comparison of a sentence to a geometrical figure is exceedingly unfair.

Suppose we analyze or diagram one sentence; a thousand odds to one the next sentence we try will bear no resemblance to the one just dealt with. Grant that some scheme will show the relation of the parts of a sentence; the learner has no principle by which to reconstruct his work into the original form. The object of teaching is to produce practical results. Suppose a boy of average ability entrusts us with his education until his sixteenth year. A sound, broad development is the *summum bonum* of what we can do. Now any one will grant it a necessary accomplishment for him to glean from his books all the thought therein conveyed. It makes him a far better student to have the unconscious power of feeling the structure of sentences as he reads. *The most practical result that can possibly come from syntax is the ability to get a quick, broad, and sweeping view of a sentence.* The ear that is trained to catch the idiom of construction, whether one be reading from a book or listening to spoken words, will need little help to punctuate correctly.

There is nothing about diagraming that will produce this result. No matter what one's ability in manipulating one of these schemes may be, he will never stop to use it in reading a book. If he stop to use his method as he reads, the perusal of one of Bacon's essays would take about three days. The only way he could use his knowledge would be to have the marvelous power of flashing a diagram through his mind at every sentence. And when we think of sentences having seventy or a hundred words, the impossibility of the whole thing becomes apparent.

Again, these forms take no notice of the finer distinctions of language: adverbial modifiers of time, place, cause, condition, purpose, and result, all take the same relative position to the verb. If any one is puzzled over the meaning of a sentence in his own language or in translation, he cannot stop with finding the grammatical relation. The whole pith and point of the sentence turns upon the hidden nature of the elements. If a clause of result is mistaken for one of purpose, or if any one of a thousand mistakes occur, the meaning of the sentence is lost. Now, it is a grevious error to ask a scholar to throw away time upon something that will in no way increase ability to work his way into the spirit of language. The idea that so many uses of dependent elements stand in the same relation to the modified element is positively injurious.

Again, there are many constructions which cannot be represented at all. The nominative absolute, case of address, and interjections are left out of the schemes. But no one ever wrote or spoke a rational sentence in which he used words for nothing. Really there is no such thing as independent construction. We might as well say the car steps are useless, because we don't ride on them, as to say the noun "John" has no use in the sentence, "John! you may close the door." In the sentence, "Our comrade being dead, we sadly continued our journey," the absolute phrase "our comrade being dead" is quite equal to "when our comrade was dead." It is these finer distinctions which make the study of language interesting, which polish the art of writing and pry into the meaning of sentences. And herein diagraming utterly fails to be of service to the scholar.

Thus far I have kept purely on the ground of grammar. It has been the endeavor to prove two points:

(1) Any plan of analysis or diagraming that breaks up the natural order of a sentence cannot produce the ability to see construction rapidly.

(2) Such plans fail to dispose of many constructions and arrange parallel modifiers on the same basis.

But the worst objections arise when we come to consider grammar with composition. The art of constructing is always more difficult than the art of dissection and criticism. It is a prime requisite for a carpenter to study each individual piece before putting it into a house; yet no good comes from tearing a house to pieces, and he might go on tearing down houses all his life-time and be no better carpenter for all his pains. A good composer in any art must enter into the life of his creation. If analysis is not to teach the natural organism and life of a sentence, what is it for? Snytax can teach grammatical rules and technical knowledge of the parts of speech. Analysis must show the functions of elements in the real, living organism,—not by dissecting and thereby killing the genius of the idiom, but by showing the power and beauty of arrangement as it is. He who sees the beauty of thought and expression in the living natural sentence alone will compose to delight the ear and attract

the fancy. One might as well knock the Apollo Belvedere into pieces to find its beauty, as to dissect a sentence to find its nameless power. A student's knowledge of analysis should aid him to appreciate words as they are. His power of composition and his appreciation of literature exceeed in value any other thing he can derive from grammar. A very interesting pamphlet was written some time ago by Prof. Hale concerning the reading of Latin in its natural order. This was directed against the then prevalent method of translating foreign lanugages by picking them to pieces. About the same time Prof. Greenough recommended the student to take a cardboard in which a slot had been cut large enough to cover any word; then to begin a sentence by placing the slot over the first word and to slide it along as he advanced. In the Allen & Greenough Cicero, dated 1886, the teacher is urged to make his students follow the natural order in translating. Any one would grant the validity of these arguments, that the only way to study language is to enter into its spirit. Unto that end all the study we put upon the grammar of a language is directed; and what is true of Allen & Greenough's Cicero, is eminently true for every book that contains the written thoughts of man.

Now the objections made against the dissecting mode of translation are precisely the same as should be made against the prevalent modes of grammatical analysis. It is of vital importance to know the functions of the parts of speech, but it is of equal importance to feel their functions in their order, and to recognize that they have no functions at all when thrown out of their order. To treat the parts of speech separately is etymology; to state the principles of their relation in sentences is syntax; to use etymology and syntax in acquiring the meaning and rythm of sentences is analysis.

Analysis ought to open to the average student the treasures of literature; it ought to make him a master of punctuation and prosody. That is the field which rightly belongs to it. That is the only way that I know of to link grammar with practical results; to stem the tide of modern sentiment that has arisen against technical grammar. If a scholar has mastered etymology and syntax, it remains to give him a form of analysis by which he can understand any sentence he meets. But to give him a form for the thousands of sentences that he will meet in a life-time, would be utterly impossible, unless he be taught to analyze in the natural order. This is the point to which I have been reaching all the way through. Unless the necessity and value of this be firmly proven, my whole system of analysis will fall to the ground.

The place which analysis should occupy in grammar, is not a settled point by any means. Although a question of such vital importance ought to have been settled long ago, our grammars are marvelously different in the treatment of its proper sphere. Those who use diagrams, place it generally along with each lesson in syntax. The advocates of analysis are divided among themselves, some placing it after, some before syntax. Now, if the inconsistency of diagrams and disconnecting modes of analysis be already proven, we can dismiss their proper sphere from this discussion. Bear in mind, however, that the admission of this point bars out nearly every American grammar published up to date.

In determining an idea of the exact place of analysis in grammar, it must be granted that the natural order of analysis is the only rational method. The principles of etymology and the proper conceptions of that subject are fixed. The subject of syntax is upon an equal footing. For

ages this has been about all of grammar; and for nearly all its history, etymology has held the first place. In other words deduction has been the rule of that science. None the less the inductive method of studying language has always been in use, at first unconsciously and in modern times reduced to a science. The author of the article "Grammar" in the Encyclopedia Britannica, declares the only rational way of teaching language is to begin with syntax.

This idea has obtained numerous advocates now, and some institutions of learning are managed entirely on that principle. Consequently we are met at the very outset of our investigation with the task of settling another question before proceeding with the one at hand. The warfare between deduction and induction has been waged for the possession of every subject. Volumes might be written of the discussion upon this one subject. Without entering into any argument upon this point I shall say that I am convinced that grammar is a deductive science and upon this conclusion I shall take up the discussion of the former point. In other words the proper order is this: first, a knowledge of etymology, or the forms of words; second, a knowledge of syntax, or the relation of words. Now the modern idea of sentential analysis and diagraming have been to offer aid in syntax. But does a student need any such help? The idea that a teacher or pupil should need such help to lean upon in teaching or learning the use of an appositive noun, a predicate adjective, etc., seems unreasonable. Besides it is an inefficient crutch to lean upon even were we to lower the noblest of the sciences to such a plane.

Going back to the definition of analysis already laid down, namely, that analysis by using etymology and syntax must give the acquirement of seeing the whole structure and meaning of a sentence, it seems reasonable to assign to analysis the last place in the completion of a scholars' course in grammar. It is not meant that one cannot understand a book without syntax or analysis, but surely a scholarly conception of their structure must be considered invaluable and must be insisted upon as the aim of analysis.

In this plan words and phrases are taken as the unit of analysis. No new ideas are entertained of phrases, save that a noun or pronoun in the nominative absolute, together with its modifying participle or adjective, is considered an absolute phrase. In a simple sentence the elements are numbered at the left, in order to provide a more convenient method of referring to them again. At the right the function of the element is indicated; nothing farther is arbitrary and much is left to the originality of the pupil.

"Early in the morning of the fourteenth, the enemy's ranks being broken, they pushed onward a few miles."

A simple declarative sentence.

1. "early"—adv.',+pushed.
2. "in the morning"—adv.''+pushed.
3. "of the fourteenth"—a.''+morning.
4. "the enemies ranks being broken"—adv.''+pushed (tells cause.)
5. "they"—s', sub.
6. "pushed"—verb.
7. "onward"—adv.'+6.
8. "a"—a'+10.
9. "few"—a'+10.
10. "miles"—adv.'—6.

There can be no chance for a student to escape showing his knowledge of every word in this way. The space at the right gives ample room for noting the exact use of the element in question. Another example might be appropriate in showing the treatment of verb forms and exclamations.

"Oh king, I have suffered long, and was twice wounded at the crossing."

1. "Oh"—interjection (sorrow).
2. "king"—s′, case of address.
3. "I"—s′, sub.
4. "have"—aux.
5. "suffered"—verb, past part.
6. "long"—adv.′+4+5.
7. "and"—conj., con. 5+wounded.
8. "was"—aux.
9. "twice"—adv.′+10.
10. "wounded"—verb, past part.
11. "at the crossing"—adv.′′+10.

It seems necessary to demand that the verb should be made distinctly clear, consequently an analysis into its component parts must be insisted upon. But in the analysis of complex sentences lies the chief virtue that is claimed for the plan. The clauses are denoted by numerals and, when broken into by parts of other clauses, the natural order is still insisted upon. An example will readily explain all that is arbitrary.

"The river which is blocked with ice, will flow again when spring comes."

Complex declarative sentence of three clauses.

I. "The river"—independent proposition.
1. "the"—a′+2.
2. "river"—s′, sub.
II. "Which is blocked with ice"—a′′′+2.
3. "which"—s′, sub. con. II+2.
4. "is"—aux.
5. "blocked"—verb (p. p.)
6. "with ice"—adv.′′+5.
I. ——will flow again"
7. "will"—aux.
8. "flow"—verb. (pres. inf.)
9. "again"—adv.′+8.
III "when spring comes"—adv.′′′+8.
10. "when"—adv.′+12, Con. III+8.
11. "spring"—s′, sub.
12. "comes"—verb.

The particular advantage in analyzing thus is to enforce the meaning and force of connectives. The double use of relative pronouns and adverbs ought to occupy more attention than it does. Again, this enables a scholar to determine the value of punctuation marks far more correctly. The very reason that a mark of punctuation is used above is to indicate that a clause is broken into by words of another, and this idea must first be impressed to secure correct use of the comma. The distinction between relative adjectives and relative pronouns, between subordinate conjunctions and conjunctive adverbs, must unavoidably be brought out.

To cover the treatment of every grammatical structure is not the object of this paper. Inasmuch as compound sentences would necessitate no variety of forms, no mention will be made of them. Such are the bare outlines of a plan which has for its main object effectiveness and simplicity. To teachers of English grammar it is offered in hopes of inspiring zeal in rapid grammatical reasoning, and to be of use in composition; and, not least, to prepare the student for a readier acquisition of foreign tongues. To teachers of foreign languages it can be said that the plan works admirably in drilling classes not only in syntax, but in acquiring the spirit of the language Perchance, too, when the effectiveness of the natural order is made clear, no little step will be attained in the way of prosody and declamation.

For lack of time there could be no discussion of this suggestive paper, and the election of officers for the ensuing year was at once taken up. The choice was as follows:

S. O. Hartwell of Kalamazoo, president; W. H. Smith of Lansing, secretary.

PRIMARY SECTION.

Owing to the absence of Miss Miller, chairman of this section, Miss Harriet Marsh of Detroit was called upon to take charge of the meeting.

THE CHILD'S STANDPOINT.

CLARA. W. MINGINS, DETROIT.

[This subject was presented in a straight-forward, practical talk by one who, as supervisor of the kindergarten work in the Washington Normal at Detroit, knew whereof she spoke. The following is an abstract of her remarks:]

The child's morals cannot amount to much unless he first has physical health. If the education of the child is not a harmonious one, his life can only be filled with discord. If he starts in life in the midst of discord, harmony very seldom comes out of it; as he starts, he is very apt to end.

I would like to ask you all to consider just for a minute the utter and absolute helplessness of the child. I think if all people who have the care of little children would sit down and think for five minutes, if no longer, of the absolute and utter helplessness of the child, it would make a very, very great difference in the way we handle them. If you tease a cat, it will scratch you; if you worry a dog, it will bite you; but you can do anything on earth you desire with the little child, and it will not retaliate. He did not ask to come into the world, but here he is. He has not asked you for an education, but he must have one. You take this helpless little creature and put him into the hands of a mother who perhaps has not an idea in the world what to do with him. She experiments with him, she does perhaps the best she can with him. Here he is in the hands of the church and the State. The church will baptize him, if his mother wishes it. The State knows very little of what is done with this little helpless child by those who have it in charge.

Consider the child before the age of seven. Say he is placed in good conditions. He spends the first seven years in growing, in a very rapid growth. He grows more, develops more during those first seven years than in the whole of the rest of his life. He asserts his rights. Some grown person decides whether he has any right for the thing he decides he will have. He is full of desire, but his desires are always in the present. He does not care anything about tomorrow. What he wants, he wants today. His desires wish immediate gratification. That is what he demands.

The child is extremely curious. You all know how very curious he is. "What is it for?" "Who made it?" etc. He has a vivid imagination. He is ready to imagine almost any thing. He has an immense amount of joy. He enjoys thoroughly, but he has also the ability to suffer greatly. A little child before he is seven years old has the keenest kind of sorrow. You say a little child forgets his sorrow, but his sorrow is just as keen as that of the grown person; and the child who has always to have this deep sorrow is weakened for all his future by these keen disappointments.

The child lives only in the present. I think that is the thing we should remember. He knows no past; he knows no future. He knows nothing about the past or the future. When he talks about being a man, he doesn't really expect to be a man. He doesn't really *know* anything about it.

At the age of seven years, reflection is only beginning to awaken. He has great faith, but his faith is all in his mother and in his close, intimate friends. He has great hope. The young child hopes much, and it won't bear deferring. Hope deferred with the little child leads to distrust.

The child has no real idea of duty. You may talk to him about duty, you may get him to see what his duty is; but he has no real idea of duty towards his God, or towards his fellow-men. The child's idea of what is right and wrong, is simply what his mother approves of. If his mother says, "Now, that is wrong," he condemns it and says it is wrong. If she says it is right, he says it is right. Many times he does right because of fear of punishment, and many times he does right because of his great fondness for someone who wants him to do that thing. He has a conscience to some extent. His mother tells him that there is something inside of him that tells him what is naughty; but oh, how quickly he forgets it!

Now, there is your boy and your girl until about the age of seven. Up to this time he has been given his absolute freedom, unless he has gone to kindergarten; and if he goes where his freedom is taken away from him, he had better have stayed at home. We will say that, up to this time, he has had absolute freedom. He has learned more in those first six or seven years than he will ever learn after. He understands very little, but he has impressions which go with him through life. His faith in his mother fills him with impressions. His love for his mother makes him think that there is nobody in the world just like her; and at this impressionable age he is sent to school.

Someone said this morning that there was no great gap between the home and the school. I think there is an immense gap between the home and the school. The child has gone absolutely free. He has raced and jumped all day long. Now he goes into school and sits four and a half hours

under restraint for the first time in his life. There is a big jump from the home to the school.

The child at an early age must have formed many habits. We talk a great deal about character building. We say we want our boys and girls to be men and women of strong character. What do we mean? This child who has formed habits up to seven years cannot go to school and have these habits wiped out as if he were a slate and you were a sponge. Those habits are there and will stay. The teacher is expected to make something wonderful of that child in a very short space of time, forgetting that he has formed a number of habits that have started him on the right or wrong way already; but those habits are there.

The child at the home and the child in the school are two different beings. I know there will be many people who will dispute me here. I have studied them out of school for many years trying to make friends with them, hearing what they had to say, and I *know* that the child is one thing in school and another at home. In school there is a certain restraint which he never gets over, no matter how dear his teacher is. He is one among forty or fifty pupils. He is no longer the one child. She is only human at the best, and can only give him one-fortieth or one-fiftieth of her time. When he gets out of school, he tells what he thinks; and he tells some very funny things. If you could hear him talk, you would know right away where we are making mistakes.

Not long ago a little fellow about five years old was sent to school. He was an impressionable little fellow, bright and promising. One day a lady said to him, "What do you do in school?" "Oh, noffin," was the reply. "Yes, but what do you do?" "Well, I read and write." "Anything else?" "No." "What do you read?" "I read, 'A cat can see.'" "Well, what does the cat see?" And in the most disgusted tone, he answered, "Oh, nuffin. A cat can't see nuffin! Just 'A cat can see.'" A few minutes afterwards he said, "I can write better than Tommy." In answer to questions why he could write better than Tommy, he said: "Why, I shut up my cat at the top and Tommy leaves his open!" What did the child mean? Simply that he closed the "a" at the top and Tommy did not. That little fellow was a promising, bright boy, and I know he had a bright teacher.

The little fellow sickened and died shortly after that. Not because he went to school, but it so happened. And the constant cry of that child all through his sickness was: "Mamma, don't put my new shoes on because thy make a noise in the halls." His mother was heart broken. His teacher made no fuss about his making a noise in the halls, but it was the restraint. If she said "Go quietly," "Don't be noisy," this little fellow went through the halls on his toes, because his shoes squeaked. Many times we forget the impression that is made on these little children. The cry always, it seems to me, is that the children must be quiet. "Don't make such a noise!" The teacher wants her room to be the most quiet in the building; the principal wants his room to be the most quiet in the county; the superintendent wants all the rooms to be the most orderly in the United States. The superintendent does not mean any wrong; the principal does not mean any wrong; the teacher does not mean any wrong. No one has any idea of wrong, but this little fellow is impressed with the awful silence. If you don't take my word for it, get a half dozen children about you and you will understand. The child comes racing down the street until he gets to the school room; then, through the

rest of the session he is under restraint, and he is another child when he gets out of school.

The physical part of the child demands great attention; it demands more attention than we are giving to it. It seems to me the child has a right to a physical development. The question is, "Are we going to have a better type for men and women than we have now?" The child that is made strong physically, it seems to me, is made strong mentally. I cannot imagine, and I think you will all bear me out in this, I cannot imagine a child who is so nervous becoming strictly a moral person. He cannot. It is out of the question.

But the great thing with the child is observation. He observes before he comes to school, certain things, or else he observes nothing. We talk a great deal of nature now. Isn't it a pity, *isn't it a pity*, that we have to take the children and shut them up in the schoolroom to teach them nature? Why didn't his mother teach him before he went to school to see the sky? Why doesn't he know what the wind does? Why doesn't he know about the rain? Why does a rainy day seem a nasty day? It wouldn't, if he had not heard someone call it so. Why should the sun be a disagreeable sun for shining in the baby's eyes? The same with all the changes in nature. Why doesn't the child observe all these things? Because, for one thing, the door of nature is never thrown open to the child until he enters the schoolroom. But you cannot bring the world into the schoolroom, no matter how hard you try. Perhaps the day will come when we shall feel so strongly on this subject that we will take the child out of doors and let him come in contact with nature; but the teacher feels that she has only ten minutes to give him just so much and, if she does not do it, it will be too bad. The child must be taught nature by a nature lover.

In the school we begin literature down in the lower grades. Literature is something we want the child to have, but does the child appreciate it? I hold that the child really and absolutely knows nothing which has not come within his experience. He can be told, and believes it because you say so; but he does not know until he has experienced it. Give the child the very best literature, but it seems to me that the child must ever have an experience before he understands it. History begins at his mother's knee. He begs, "Tell what you did, mamma, when you were a little girl;" or "Tell what you did, papa, when you were a little boy." Geography begins in his own garden. His language depends upon the people who handle him. If he hears bad language out of school, it is impossible for the teacher to teach him good language. After the child has gone through the high school and learned to talk in a grammatical way, if he is excited, he falls back into the way he was first taught.

Reading and writing in the school are all new to children and mean nothing to them. In the early years they do not realize what it is going to mean in the future. This is true: if you learn a language, if you take up the study of German, you have an end in view; but the child does not know what is coming out of it. He sees no sense in reading *things that he knows*. Reading is hard work with the child. The same is true of numbers. If you say "How many brothers have you?," that has some meaning to him; but reading and writing are hard work for the child.

Going away from school, the child we are preparing for the future needs to be an all around man or woman. No real man or woman ever tells an untruth, but this child from his boyhood has seen untruth all

about him. Somebody calls: a clean apron is slipped over his dirty frock and he is taken in apparently clean, but he is not clean and he knows he is not; he is made to act a lie. Or perhaps his mother does not do this; perhaps she has a nurse to do it for her: but he hears his mother say,—"Why, how do you do, Mrs. Jones? I am delighted to see you!" And after Mrs. Jones goes away, she says; "Well, I wonder what Mrs. Jones called for today, when I am just as busy as I can be!" He grows up with that thing all about him. He does not meet with very much better in the schoolroom. The teacher is not truthful with the child, even when she means to be. We treat a child with the most horrible injustice right straight along. When he gets a little older, he gets so that he can reason about it.

We say we want him to be good. We give him a patrol wagon to play with, maybe. He goes out of doors and plays he is drunk. Then we may talk to him about the evil effects of liquor and the crime of drunkenness, but all he sees out of it is a good deal of fun. These things to the little child mean everything.

We say he must obey—obey God's law; and we expect him to understand. And many, many times a little child is expected to give the blindest kind of obedience and is punished for disobedience.

We say to the child he must be pure. Tell him of the flowers, of the sky, and talk to him of purity, and blush ourselves at the purest things in this wide world. We hide away the purest things on earth, and the child gets from the newspapers things that nobody ought to have on the table; and yet we say, "Be pure."

We say to the child that he should have respect for his elders; but the child does not see reverence thrown about him. He does not understand it. When you consider it all, has he very much of a chance to understand what it all means? We say he must be compassionate. We talk to him of the pure and of the sad things of life, and yet do we show any great compassion to the young child?

Now, my dear friends, I want just to say here that I have tried to give you just what I have gathered myself from little children all over the country. You cannot say, as we so often say, "When he gets older he will see these things." He will see them just as we see them. Now the child has one right above all others; that is, he has a right to growth in his early childhood. He has a right to demand from us, who are caring for him, the right to grow. We are responsible for the placing in his way of that thing which is suitable for his growth. He has a right to look up to us and demand our help, while he is still a little child.

DISCUSSION.

Opened by ADA VAN STONE HARRIS of Ypsilanti:

Ladies and Gentlemen:—I feel that the subject has been so admirably set forth that there is very little left for me to say; but I could not help thinking, while Miss Mingins was speaking from the child's standpoint, that much might be said from the teacher's standpoint. I feel assured that we all realize the necessity of the most careful preparation on the part of the teacher. There are many things a teacher needs to possess, in order to educate the child as he needs to be educated—charity, benevolence, sympathy, courage, honor, and numerous other characteristics that I might mention. We should also realize that the little child has a right in the world, just as much as we. I fear we do not always consider this. We think, "Oh, they are children," and we put them aside. Their minds are filled with questions and they insist on answers to the ques-

tions, and on our explaining to them the curious things in the world. We turn them aside, and I often wonder if we do not injure the child by so doing. We should take the utmost care always to answer the questions. If we cannot answer them, say to him that we do not know about these things. I know of a mother who has carefully studied her child from infancy. The little one never asks the mother a question but what, if she does not know, if she cannot answer, she consults the dictionary or the encyclopædia. And the child has gotten so that, if she hesitates, he will say: "Well, mamma, I am afraid you don't know about this. Better consult the dictionary." Time in answering the questions of the child is time *well spent*. It is through sympathy that we gain his confidence. Let us have sympathy for the child in its inquiries.

Many teachers make a mistake in the use of sarcasm in the schools. I believe there is many a boy and many a girl who is injured for life through the sarcasm of the teacher. I have seen boys and girls in my school work that have been thus injured; and, if I had been in their places, I should have had the utmost contempt for the teacher.

Teachers also make a mistake a great many times, in always praising or always censuring children. We cannot study the child too long or too carefully. The individual child needs to be studied. What will do for one child, will not do for another; bad results often arise from praising children, when they should not be praised, and from censuring them when they should not be censured. Let us look to it that we know when to praise and how to praise; when to censure and how to censure.

In regard to the helplessness of the child; it seems to me that, because he comes to us in such a helpless state, there is all the more necessity for help. At the same time we should realize that all things we do to help the child, have a great influence. Therefore, the help should be of such a nature as to lead him into habits of *self helpfulness*.

With regard to the restraint that is put upon the child, there is no one who believes more in the naturalness of restraint than I do; at the same time, if we should allow the child that same natural activity that he enjoys out of doors, I am afraid we would all be subjects for an insane asylum in a short time. A child gains strength, a child gains power, from a certain amount of restraint that is put upon him. He learns to control himself physically, mentally, and morally. I am sure we are all agreed that a certain amount of restraint is necessary. At the same time the teacher must take great care that it is a natural restraint. What I mean is the restraint that comes from a child's love and confidence for the teacher. Not long ago I visited a school where the children came from the best homes in the city; they were full of life and activity; they were restrained in the schoolroom, but I think I never saw more natural restraint; they were little ladies and gentlemen, in the highest sense of the word.

If there is no interest manifested on the part of the child, it is not because there is no interest to be aroused, but because the teacher has failed to arouse that interest. We harp on *two and two are four* or *the cat can see*, day in and day out, always in the same old dress. Is it any wonder the child lacks interest? The value of child study will be shown in future years, through a more thorough and a more careful preparation on the part of the teacher.

Do we, as teachers, in viewing the child from the child's standpoint, as Miss Mingins has so well portrayed it, fully realize that we should all become as little children and, with our wider knowledge, educate them from *our* standpoint through *their* standpoint?

The chairman then requested Supt. Simmons to speak to the teachers.

SUPT. J. W. SIMMONS of Owosso:

I have just come into the room; have been signing railroad certificates all the afternoon. I will not be prepared to discuss the paper. I might say that all those who want their certificates signed had better present them as soon as possible in the other room. I will say but a word. I am afraid that will not be along the line of your talks, but it was my privilege last February to hear Dr. Sheldon of the Oswego Normal, in his address at the meeting of Department of Superintendence at Cleveland. In regard to the child and the teacher from the standpoint of both, one thing he said was that if he went into a schoolroom and wanted to know whether the child was at home, and the teacher was a teacher in the best sense of the word, he noticed when the teacher went down the aisle; and if the pupils reached out their hands to touch the hem of her garment as she passed by, he knew then there was a coöperation between the teacher and the pupil. I learn that something has been said about too much discipline or too little discipline. I think there can be too much and too little, but I would rather have too much than too little, though good order doesn't mean the silence of the grave; it means a workshop.

MISS FLORENCE MARSH:

One point that has interested me very much, is the question of restraint in the schoolroom. I think all of us who deal with little children feel that we cannot get the best work, unless we have better discipline and quiet; and yet, I must feel that we require too much for the child's nervous disposition. I have often wondered if teachers have tried a small amount of conversation in the schoolroom as a diversion. I am sure that we have all felt the need of it when we have had to sit for four or five days, at a convention.

MISS SHERWOOD of Saginaw:

I have never experimented myself in allowing children to converse freely in the schoolroom, but I have visited a school wherein a great deal of liberty was allowed the children—not license, but liberty—simply the liberty they need when they work and when they study. The child who is busily working is not still. He is on the *qui vive*—perhaps his feet move. If there has been borne in upon his mind that which interests him very much indeed, he is not quiet. When children are interested in their work, it seems to me that children are never quiet.

In this school I visited—not more than a thousand miles from Lansing—when the teacher called the class she simply said, "The A class will come forward." The children hopped up from all around the room and went to the teacher. I use the word *hopped*, for there is no other which will describe their manner of going to that class. They just went; that was all. No discipline in it all, except this: those children knew there was to be something interesting, and they were eager to see the interesting thing. This same liberty was allowed in the class. When a child had something to say, the others were polite enough to listen to what that child had to say. Occasionally one child would break in before the other had finished his remark; but there was that feel- among the children, communicated from the teacher at odd moments, that in all their work they were simply to be polite to each other. And whatever work they were doing they were allowed this liberty, to this one extent that it must cease when it annoyed other people. That was all the discipline there was in the room. It was not what would be called a disciplined room, but in my estimation it was a very orderly room.

MODES OF EXPRESSION.

MARTHA A. SHERWOOD, SUPERVISOR NATURE STUDY, SAGINAW, E. S.

I think we all recognize the fact that there is a growing tendency everywhere to accord to each study importance commensurate with the part it plays in the general development of the child; to measure the amount of time and effort devoted to it by what it accomplishes in training character.

Nowadays we are not inclined blindly to accept a traditionary belief that a child must know a definite amount of bank and true discount in his arithmetic, must have committed to memory the order of letters in a certain number of words, or be able to give the boundaries and capitals of all the states in the Union, or have written through a certain number of copy books, in order that he be considered as making progress in the process of education.

Instead, there is everywhere careful consideration of each branch of study urged for admittance into the school curriculum. Educators say, "What faculty of the mind is it designed to develop?," "What mental power does the pursuance of it give?," "What mechanical skill is gained through it?," "Does it tend to develop any of the nobler qualities of a man's nature?," or, "In a general way what part does it play in the all-round training of character and ability?"

This tendency is in a very large measure due to our better understanding of children and their needs, and our understanding of the true aim of education. Naturally it has resulted in our relegating some studies to a position in school work of considerably less importance than they have

hitherto occupied, and in giving more time and greater effort to other studies that have occupied an insignificant place on the school program or have not appeared there at all until recently. It has resulted, also, in an attempt to divide the lower grade studies into two classes:—those that are termed thought studies, by means of which new ideas are gained, thought cultivated; and expression or form studies, by which those ideas gained in thought studies are expressed or communicated to others. The former class is the one which the committee that formulated the new course of study for city and town schools of the state of Indiana, calls culture and nature studies.

This committee places under culture studies (I think it is a division generally conceded) literature; in the form of myth, story, fiction, biography, history, and sociology; under nature studies, all of the sciences that are now taught in lower grades.

Under expression studies are classified:

1.—Writing.
2.—Drawing.
3.—Painting.
4.—Molding.
5.—Modeling.
6.—Music.
7.—English.
    a.—Spelling.
    b.—Language.
    c.—Oral Reading.
    d.—Grammar.
    e.—Composition.
    f.—Rhetoric.

In the lower grades it is but comparatively recently that literature appeared in any form (excepting so much of the ordinary early readers as can be called literature) and science appeared not at all. Culture and nature studies have been conspicuous by being largely left out of the prescribed course of study for primary grades, on the supposition that they were within the comprehension of only upper grade students. In consequence the work has been devoted almost wholly to careful drill in the expression studies—numbers added—making those the end and aim of the work instead of a means unto an end, carefully giving the children the means to express themselves ready for the time when their minds were sufficiently developed to gain thoughts worth expressing.

I would not have you think that I mean that oral reading, writing, spelling, language, etc., are to be neglected. Not at all. They—all form studies—are of the utmost importance. But, manifestly, if one desires careful expression of thoughts, he must have careful thoughts. How can expression in any form be clear, if thought itself be vague and hazy or there be no thoughts to express? It is such of these studies as are adapted to lower grades, in the great importance of their proper sphere, that we shall consider.

It is impossible to make a division in the English studies and say we will pursue one to the exclusion of the other. If one studies composition or grammar, he must in connection with and through them study all the other English branches. So with each one in its turn. And they are

really all taught to children in connection with the thought studies from the time he enters school. In the lower grades we study them all under the one head of language, and I think may class and discuss them under that head.

Drawing, painting, modeling, and molding we may call the art studies.

The following is a brief statement of the points made in discussing the necessities and the uses of the different modes of expression.

LANGUAGE.—WRITTEN LANGUAGE.

First Year.

1. Impossible to differentiate studies during early part of first year. Correlation a necessity here.
2. Child's first attempt in English studies at school is in mastering oral, written, printed forms of new words taught, in connection with thought studies.
3. Emphasize necessity of thought work with language in connection, instead of for itself.
4. Necessity of no writing, no spelling as such at first, children retaining words as pictures in consciousness.
5. When child has sufficient words—written forms—to combine into sentences, begin sentence writing on a board at once.
6. Original sentences made from observation in the science work.

At end of first year the child should be able to express himself intelligibly orally, and to write correctly simple original sentences made from observation in science work or in reproducing the literature stories; to begin those sentences with capitals, know the use of the period and the interrogation point, and to spell correctly the words needed in those sentences.

Second Year.

1. Spelling taken as spelling by itself usually; reasons why it should not be.
2. Writing also differentiated in order that better control of muscle and more perfect form be gained.
3. Written language conducted in same way as first year; simply, we go further.

Art Studies:

Not speak of from artistic side but from connection with and necessity to other work in school; simply as modes of expression.

Painting:

Not discuss; necessary, but as yet impracticable; will come.

Molding and Modeling—clay and sand:

1. Express form that is not at all clearly shown by painting or drawing.
2. Bulk, that can be expressed in no other way; valuable to the child and teacher.
1. Child does not know his own conception; is inaccurate until he works out that conception at his finger tips.
2. Compare with original—judges.
3. By means of working out or filling in of the mind images or concepts; they are a necessity in other studies. Clay in nature study. Sand in

geography and for modeling landscapes on which to work locations needed in story telling; great assistance sand modeling lends in building up vivid mental pictures of localities, imaginary or otherwise, that teachers find it necessary for children to have. Use in connection with drawing.

Drawing:

1. Art business usually turned around; why molding, modeling, and painting should come first, and then drawing.

2. Why every primary teacher should be an artist:

No day's work but drawing is needed—in illustrating things teacher cannot describe, such as needed for child's use in

Nature study,
Literature work,
Arithmetic or number work,
Reading,
History.

I want to urge a more general use of the various forms of art as an important means of expression, that not only serves the purpose of enabling us to see what conceptions the children under our charge have of the things we teach them, but reacts upon the mind of the child in making more vivid that image while he is depicting it.

It is the student attitude one has while molding and modeling, painting or drawing that cultivates ability. The holding an image in consciousness long enough to execute an expression of it, the rigid holding of the attention to one thing for a considerable space of time, and then the conclusions reached by comparison, that give a person a mental power which almost nothing else will. It cultivates the power of concentration which in little children can be accomplished so well in no other way.

A drawing or a model in clay or sand, will show a teacher defects, inaccuracies in children's conceptions, that she will never discover by language work, oral or written. A child, in talking, sees by the expression of the teacher's face that he is wrong and takes another tack; he sides in with the rest of the class and goes with the crowd; he talks all around the subject and leaves the teacher in doubt at the end of his recitation whether he knows much or nothing of the subject under discussion; or, as frequently occurs, he will have nothing at all to say. But if children be left perfectly free to express themselves by drawing or molding, that expression will every time be a faithful representation of whatever picture the teacher has succeeded in building up in the child's mind.

It takes so little trouble to begin this work; sand for modeling costs nothing; clay can be had at a slight expense and blackboards in a schoolroom are always at hand for drawing, while the teacher who has never drawn a line as drawing, need not hesitate to begin; for children do not need instruction in illustrative drawing. They need only to be left free to work. Or, if it becomes necessary for the teacher to draw for her pupils, in illustrating a point not understood by them in some lesson, it is the crude picture that comes nearest to the child's conception of things, and appeals most quickly to his understanding. Work in art carried on in this way without the assistance of a special instructor, may never result in artistic work in the ordinary acceptation of the term, but it will cultivate in children the ability really to see things when they look, and give them a power of ready expression, because thought is clearer. Does not that mean a great, great deal? And insomuch as all expression of truth is true art, certainly their work may be called artistic.

The proper use of the English language seems to be one of our greatest stumbling blocks in school, the occasion of the teacher's most desperate struggle from the first day to the last in school life. With language and grammar books galore, with continual effort from instructors, the misuse of our own English language makes us somewhat of a laughing stock of other nations. Why?

After study and trial of many devices, after much work in training children to careful expression, oral and written, we must come back to another and a more effective way of securing clear, concise speech and writing from our pupils,—back to the thought side.

We all agree, I think, that the importance of the study of the English language demands that very great care be observed in training childen in its use; but the surest means of securing accurate expression is by accurate thought, the result of painstaking effort by the teacher in developing ideas of the highest value. Accurate thought, something to write about or to talk of, instead of indistinct, vague ideas of things half understood or not comprehended at all. It is true that he who has lofty and beautiful ideas will seek earnestly for a fit dress with which to adorn them. Let pupils feel that their ideas are worthy of their best efforts to express them and that their object should be to set them forth in a pleasing manner, and the art of composition will be more highly considered by them.

The whole of education consists in gaining impressions, in experiencing feelings corresponding to those impressions, and in giving expression to those thoughts and feelings, maybe by word, by deed, by song, or by picture. Manifestly, whatever of truth or of beauty lies in the expression, must have its origin in beauty of thought and of feeling, else the expression is a hollow hypocrisy.

Whether it be in simple language work done in the school room, whether it be the ordinary deeds of every day life, or, possibly, a painted picture, a sculptured form, or a bit of music, the memory of which has always the power to touch the heart of him who has seen or heard,—wherever, whatever it be, it is always and always the motive behind, the power of the thought and feeling which produced the expression, that gives it the beauty and strength it possesses and that has upon the producer an educating influence far beyond the mere expression.

DISCUSSION.

Opened by SUPT. E. A. WILSON of Benton Harbor:

I would not attempt to criticise the paper read, but would emphasize the points made in the essay most heartily. We study modes of expression all through school life, yet we are constantly making mistakes. Pupils may write and spell correctly in class, yet in practice the reverse is true. What can we do to remedy these difficulties? Not what we do for pupils, but what we induce them to do for themselves, educates them. You can no more observe or remember or think for your pupils than you can eat or drink for them. An intelligent mother can tempt the appetite of her ailing child with food adapted to its digestive powers; so we can induce our pupils to exercise their powers by presenting matter adapted to their minds.

If there is a psychological law upon which we can stand, we should stand there in all our teaching. Good habits should be formed, or the law of habit—that which teaches us to do certain things in certain ways. This law of habit may be turned in the right direction or it may be turned in the wrong direction, as the incorrect form is just as apt to be used as the correct form in expression. This is due largely to the child's environment, his home surroundings, or otherwise. One says, "Educate for the future man;" another, "Educate the pupil to observe, to judge, to reason, to exercise his powers;" another, and perhaps better, says, "Keep one eye on the child and the

other on the man." In doing this, we will keep pace with all advance and still hold to the best of the past.

Perception is most active in a child's life, hence we say use objects and a variety of things that will exercise the perceptive powers. Perception is cultivated better by the mother than by the teacher. When trained at home, the child becomes more in love with nature; when he comes to school he is ready to do work with nature, hence we can use right in this connection work in science. Fill him full of it, give him ideas of animals, etc. Reproductive and constructive imagination should be trained early. Give stories about birds and animals. Memory reaches maturity, according to Bain, at ten or eleven, hence we should study literature, choice selections, poems. Use graded series of selections.

The importance of using the mother tongue correctly can not be emphasized too much. The aim in modes of expression should be simply the expression of thought; but the child must have the thought before he can express it.

Lessons for thought getting, for the development of new ideas, must precede all forms of expression; otherwise the lessons will be simply word work, and the product of the lessons will be only words.

There are various ways in which a child can get clearer conceptions of what may be dim to him. It may be geography, history, reading, or the science lessons, any lesson. Nothing new can be taught to the child, no new idea can be given him to express, without increasing his language power. The child grows in power of expression as he has more thoughts which seek expression.

The form of expression is determined largely by habit, or, still better, by the *law of habit*, and the law of habit is determined by the *ideal* set before the pupil; the language used by the parent, the teacher, or his immediate associates, will be the language used by the pupil; as, "John ain't got no marbles?" etc. The right form of expression is fixed in the same way with the pupil under more favorable surroundings; this child says, "John has no marbles," with as much ease as the other displayed in his incorrect expressions.

Whether it be pronunciation, inflection, or construction, the expression is fixed by presenting the right ideal. "As is the teacher, so is the school." The teacher's own language should illustrate qualities which she would teach. If her own association tends to fix in her speech incorrect forms of expression, she should make every effort to remedy that fault, and this can be done by reading the best books. Present the very best English to your pupils; no knowledge of rules will take the place of constant practice in good English. Practice reproduction over and over again.

Definite periods should be set aside when children give attention to the correction of their habitual errors. The plural forms of nouns, agreement of noun and verb, case forms of pronouns, tense forms of irregular verbs,—these are the more common errors in modes of expression.

Fluency is another quality of expression; if the child has something to say, say it he must and can. The ideal is found in the best literature.

Oral work precedes the written work. First, give the child an ideal; second, give him the opportunity to imitate it in his practice, as follows:

Correct use of two negatives.

Borrowing a knife, illustrate with sentences.

I ain't got no knife.

I haint got no knife either.

I have no knife.

John, lend me your knife.

Use the same question with Tom, Dick, and Harry, and by drill secure the correct answer.

Correct form of pronoun used in the nominative case.

Incorrect form of one: John and me ran across the room.

Who lives on territorial street?

John, Jack, and I live, etc.

Irregular verb forms:

Teacher writing upon the board asks, John, what did I do?

A. You wrote upon the board.

Q. Tom, what have I done?

A. You have written upon the board.

Q. Dick, what has Mr. B—— done?

A. Mr. B—— has written upon the board.

So with give, break, tear, etc.

Telling is not sufficient. It is drill, drill, drill.

By the use of pictures, teach to observe, to think, and to express thought.

The child should tell just what he sees, not what he thinks he sees. The pupil will see isolated objects and merely state the fact in short sentences. Lead him to see every object in the picture in its relation to a central figure. Thus: "I see a boy and a horse standing by a watering-trough. The horse is drinking from the trough, and the boy holds his halter, that he may not get away. Not far off is the barn, and I think the boy will lead this horse back and bring others to drink." The child is to talk; the teacher, by getting him interested, is to see that he does. By this method the child becomes independent and accustomed to complete expression. Older ones write from questions or topics on the board.

POEMS AND STORIES.—The child must be taught to see with the mind's eye, to use his imagination. All truth must not necessarily be diluted before a child can assimilate it. Kindergarten methods and work can be carried too far. The child should be made familiar with the good in literature; he should acquire the power of reading so that he may be able to know the gold from the dross, and choose that which is of eternal worth.

This getting of ideas, getting complete thought before expressing, cannot be too strongly emphasized. I know no better way than to use science, history, plenty of English, etc. The primary teacher should be a good story teller, able to awaken interest, to command attention, etc. Fables and anecdotes should be thoroughly learned so as to be given in the child's own language.

Pictures can be used for imaginary stories: 1st, Observation; 2d, Thought; 3d, Imagination; 4th, Narrative. They should be used in the primary grades. Pupils may imitate the one first reciting; to obviate this, give out different pictures. It is profitable for the teacher to write her own story as she would expect it from her own pupils. Do not allow rambling. There are two sources of thought getting; one where material is gained through observation, the other by listening to the teacher's story or through reading for himself.

RESUME.

Basing work on psychological principles.
Overcoming and correcting habits of expression formed by child's environment.
The use of the very best methods for drill work and class work.
Using the best literature even with children.
Obtaining ideas and complete thought before expressing.
Having the best of teachers—an ideal teacher—one who has ideals of work of the best, one who is thoroughly progressive.
These are the best helps for bringing out the best "modes of expression."

SUPT. E. L. BRIGGS of Coldwater:

Fellow Teachers:—I do not feel that I ought to occupy time in any further discussion of this subject this afternoon and I shall take but a very few moments. The most I wish is to express my appreciation of the paper that has been presented by Miss Sherwood. It has set forth the subject of expression in an excel ent manner; and, so far as I am concerned, I have no serious criticisms on the presentation and do not wish to enter into a discussion of the subject enlarged upon or the work presented in the paper. I was delighted with the paper, I am interested in the subject; and the thought has been so full of suggestions that it ought to be carried away without being greatly disturbed by anything I shall say. I am also pleased with the suggestions that have been made by my friend Wilson. I shall just take time to emphasize the importance of the consideration of this subject of expression. There are two prime factors in education—thinking and expression. It seems to me these two go hand in hand and should receive constant and perhaps equal attention, but always go together. This has been well set forth in the paper—the importance of presenting subjects of thought before the demand for expression is made upon the pupils; to make use of those subjects that arouse thought, and so give occasion for expression.

It seems to me in expression there is something more than the simple expression; there is a reaction upon the mind. In whatever form it may be, whether in language or in drawing or in molding or in physical culture, or in whatever form the expression is given, it causes a reaction upon the mind and the mental activity. The child that is trained to express his thoughts in good language, is trained to a clearer, more accurate, more perfect way of thinking.

Now, expression along the line of language should be a feature of every recitation. We have manifested this in our pedagogical talk, in our school work for all these years; and yet I fear we have not approached to what is invaluable in teaching expression. Every recitation should be a training in language; we, as teachers, are too care-

less about expression. There should be the most careful attention given to the form of expression. Through this expression we are constantly training the child to more careful thought, not only in creating expression in language, but in the right use of the voice in all features of the recitation. The power of expression is the test of success in actual life. That person who can express himself, is the person who succeeds. It is invariably the case, and the person who controls an assembly is the person who has been trained to express himself well; the orator who has been trained is the person whom we look upon as almost divine. So it seems to me that we need, as teachers, to give more and more attention to this subject.

The time for the discussion of this subject having elapsed, the chairman announced that the election of officers was now in order and requested all in the room to remain throughout.

Dr. Boone nominated Miss Hattie Plunkett of the Ypsilanti Training School, for president, and Miss Sherwood of Saginaw, for secretary. This nomination was supported by Miss Florence Marsh of Detroit, and unanimously carried.

Supt. Hull of Albion, then spoke as follows:

Miss President.—Inasmuch as last year there was some opposition made to the bearing of the expenses of these sections by the Association as a whole, it seems to me that it would be advisable for a treasurer to be appointed and some means adopted so that certain expenses accrued by this section could be met. I have had conversation with certain members of the Executive Committee, and I find that there is likely in future to be opposition to the bearing of the expenses of the different sections by the members of the Association. There is more justice in this from the fact that these various sections are growing. Possibly, even if the Executive Committee should audit the bills made by this section from time to time, the day may come when they will not. I move that a treasurer be appointed and possibly some plans made for the defraying of expenses in this section.

SUPT. BRIGGS.—I support the motion. I do not know but the sections are getting so numerous that it will be impossible for the mother to support all the sections. Possibly it may be necessary to make the fee of the ladies a dollar instead of fifty cents, but it does seem as though one fee should cover all. However, I will support the motion that a treasurer be appointed, and then the matter can be referred to the Executive Committee.

Supt. Briggs of Coldwater, was hereupon elected treasurer, after which the section adjourned, feeling that this had been by far the best primary program ever presented to Michigan teachers.

MATHEMATICAL SECTION.

The meeting was called to order by Prof. David Eugene Smith of the State Normal School, who explained the origin of the movement which had resulted in the establishment of mathematical sections of the Schoolmasters' Club and of the State Teachers' Association. He stated the object that had been in the minds of the organizers; namely, the improvement of the teaching of mathematics in all of its branches, from the primary schools through the colleges. It was for this reason that the program of the day covered such varied topics, and he felt confident that the influence of these meetings would be felt throughout the State. He stated it to be his feeling that, as teachers of the State should look up

to the University for inspiration in academic lines, so it seemed proper this meeting should elect as its president for the ensuing year, Professor W. W. Beman. The nomination having been seconded, Professor Beman was unanimously elected and at once took the chair.

Professor Smith then nominated Principal E. T. Austin of Owosso, as secretary for the ensuing year, and Mr. Austin was duly elected, after which the first paper of the program was presented:

NOTES ON COLLEGE ALGEBRA.

PROF. W. W. BEMAN, ANN ARBOR.

I am very glad that the committee has assigned me a topic so vague in its statement and so general in its nature that I may speak upon a variety of questions without being accused of wandering from my text; so informal that matters of equal importance may be treated with very different degrees of fullness.

My purpose is to talk about the subjects to be emphasized and the order of their presentation in a comparatively full course in college algebra. I shall presume only upon such a knowledge as may be gained by the average student from the American high school text-book, implying, at least, a working familiarity with the ordinary requirements for admission to college; i. e., the fundamental rules, fractions, simple equations, involution and evolution, the calculus of radicals, and quadratic equations.

One of the very first things to be provided must be a review of the fundamental notions, with such extensions as may be adequate for subsequent needs. At the beginning should come an accurate and reasonably full discussion of number-systems with the laws governing them.

Here should be found a definition of number as a collection of units. It should be shown that by putting together one and one, one and one and one, etc., we arrive at the system of whole numbers or, positive integers as they are more usually designated. Having agreed to define two numbers as equal when to every element of the first there is a corresponding element of the second, and reciprocally to every element of the second there is a corresponding element of the first, to define two numbers as unequal when to every element of the first there is a corresponding element of the second, but not reciprocally (in which case we say the first is less than the second, the second greater than the first), we are prepared for addition.

This we define to be the process of forming from two numbers, a and b, a third c, which shall contain all the elements belonging to both a and b, and none other. The significance of the sum of three or more numbers is readily discovered, and the associative and commutative laws for the addition of positive integers can be established.

In case the numbers to be combined are equal we are naturally led to the idea of multiplication. This we may define as follows: to multiply a number a by a second number b is to form a third number c from elements a in the same way that b is formed from its fundamental units, and so on for the product of three or more. We can now establish the commutative, associative, and distributive laws for the multiplication of positive integers. If the factors of the product are all equal, we call it a power, give to the operation a new name, involution, and establish the index law.

We are now set to consider inverse operations. Thus subtraction is the inverse of addition, division the inverse of multiplication, etc.

To subtract from a number a a second number b is to find a third number c which added to b or increased by b shall reproduce a. Subtraction is possible only when a is greater than b. The formal rules are the immediate consequence of definitions and laws previously established.

To divide a number a by a number b is to find a third number c which multiplied into b or multiplied by b shall reproduce a. Division obviously is possible only when a is a multiple so-called of b. By subtracting the number b from the number a as often as possible, the remainder, if any, from b, and so on, we attain the notions of highest common factor, prime number and others of considerable importance in dealing with fractions.

The process of finding a number such that when used as a factor a definite number of times it shall reproduce a given number, is called extracting the root or, more generally, evolution. The conditions of its possibility are obvious.

The question now arises, can we interpret division when the dividend is not a multiple of the divisor, subtraction when the minuend is not greater than the subtrahend, evolution when the original number is not an exact power of the degree desired.

A satisfactory answer to each of these questions requires the introduction of a new system of units. For division we introduce units such that two, three, or more, shall reproduce one of the original units and define all operations with these in conformity to the laws previously established. We are then prepared to deal with fractions.

For subtraction we introduce a new unit which shall have the effect of annulling one of the original units, or such that a number a increased by an original unit and the corresponding new unit shall remain unchanged. Again we define operations with these units in conformity to the laws governing operations with positive integers and are led up to the new law, the law of signs. Negative numbers are now under our control.

The numbers already obtained, whole numbers and fractions, both positive and negative, including zero, constitute the system of rational numbers.

The geometric representation of these numbers, as distances measured forward or backward from a fixed point upon an indefinite straight line, should be recalled and insisted on.

To determine the number whose positive integral power shall be equal to a positive integer which is not an exact power of the degree indicated, requires the introduction of the so-called irrational numbers.

A scientific treatment of these numbers is by no means easy, and the ablest mathematicians are not at all agreed in the details. The irrational number is usually defined by a sequence of rational numbers. Thus the $\sqrt{2}$ would be defined by the sequence 1, 1.4, 1.41, 1.414, 1.4142, 1.41421, etc. The laws governing these sequences must be such as still to hold when rational numbers are defined by them.

Numbers rational and irrational constitute the system of real numbers. We notice now that there is a one-to-one correspondence between real numbers and points on the right line previously mentioned; i. e., corresponding to every real number there is a unique point upon the right line, and, reciprocally, corresponding to every point upon the right line there is a unique real number.

To determine the number whose positive even power is equal to a given negative number, we must introduce a new unit, the so called imaginary. We may define the new unit i, by the equations $i^2 + 1 = 0$, or $i^2 = -1$. Any number of the form bi, where b is real, is called a pure imaginary. If the number under consideration takes the form $a + bi$, where a and b are real, it is called a complex number by reason of its being made up of two distinct units. Two complex numbers, $a + bi$ and $[a^1 + b^1i]$, are defined as equal when the real parts are equal, and also the imaginary parts. The definitions of the addition, subtraction, multiplication and division of complex numbers can now be laid down in conformity to the laws previously established.

The conventional geometric representation of the complex number is obtained by assuming a horizontal and a vertical line, laying off the real part to the right or left of their intersection, the imaginary part upward or downward from the same point, and drawing parallels through the points thus obtained. The complex number is represented either by the intersection of the parallels or by the vector joining the origin to this point.

Geometric interpretations of the addition, subtraction, multiplication, and division of complex numbers can be deduced without serious difficulty. There is a one-to-one correspondence between the complex numbers and points in the plane of the lines selected.

In the discussion of involution attention was directed to the factors rather than to the exponent (so called) of the power. It is important to see what interpretation, if any, can be devised for the cases when the exponent is no longer a positive integer; i. e., when it is a fraction, a negative number, etc. Since $a^m \times a^n = a^{m+n}$ when m and n are positive integers, if the above index law is to hold in general, $a^{1/2}$ must be so defined that $a^{1/2} \times a^{1/2} = a^1 = a$; i. e., $a^{1/2}$ is a square root of a. Again, $a^{1/3}$ is a cube root of a. Similarly a^{-m} must be defined as to equal $\frac{1}{a^m}$ and a^0 to equal 1.

Involution has two inverses: one, evolution, referring more especially to the factors of the power; the other, the logarithmic operation, having to do with the exponent of the power. For a satisfactory discussion of the theory of exponents and the theory of logarithms, we must make use of the sine and cosine, together with De Moivre's Theorem.

Through all this it should be continually borne in mind that in laying down our definitions of operations with fractions, negative numbers, irrational, and complex numbers, we have been guided by the fundamental laws governing operations with positive integers.

Having thus cleared the ground, we are ready to make a rapid review of the applications of these laws. This review may be prefaced by a simple discussion of algebraic functions, bringing out especially the notions of homogeneity and symmetry.

To the examples under the fundamental rules I would give but few answers, requiring the student in every case to test his results by performing the operations in a different order when possible, by the substitution of numerical values, by considerations of homogeneity and symmetry, by inverting the operations, and so on, till he became thoroughly self-reliant. In multiplication I would use the sigma notation when convenient, and detached coefficients; in division detached coefficients and the synthetic method, especially with a binomial divisor. In factoring much should be made of the remainder theorem, both for the establishment of funda-

mental theorems and the solution of particular problems. Of general theorems in factoring I would not give any considerable number. A brief discussion of highest common factor, lowest common multiple, and fractions would suffice. Involution, exclusive of the binomial formula, demands little attention.

With the simplification and combination of expressions involving surds, or radicals, the students should be thoroughly familiar.

The subjects of ratio, proportion, variation, and the progressions, will naturally find a place here. The propositions dealing with a series of equal ratios are very helpful in later work.

Linear equations involving but one unknown will require little new treatment. In dealing with linear functions of two variables I should introduce the elementary ideas of analytic geometry so far as necessary to construct the right line represented by $ax + by + c = 0$, noticing how the equation is satisfied by an infinite number of pairs of values of x and y and how the solution of two independent simultaneous equations such as $ax + by + c = 0$ and $[a^1x + b^1y + c^1 = 0]$, is the same as determining the coördinates of the intersection of the two lines.

With the solution of simultaneous linear equations involving two or more unknowns by addition and subtraction I would introduce determinants. Here I would demonstrate the theorems having to do with the expansion and simplification of determinants, their use in the solution of simultaneous linear equations, the condition of the consistency of such a system, and the multiplication-theorem.

While various methods of solving quadratic equations with one unknown should be presented, the student must not get the impression that he has always to complete the square, the solution by factoring or the use of the formula being more expeditious.

The expressions for the product and sum of the roots should be dwelt upon for their theoretical importance and their value in testing the accuracy of results.

The discussion of the conditions for the various kinds of roots should be presented with considerable fullness and illustrated by the construction of the graphs corresponding to $y = ax^2 + bx + c$ for various values of b and c.

Radical equations (so-called) may be treated in this connection rather fully, the various methods of simplifying them being carefully discriminated. The student should be warned that involving to powers or multiplying by factors containing the unknown, will introduce extraneous roots.

In the solution of higher equations by the methods of quadratics a number of roots equal to the degree of the equation should always be secured. Great light will be thrown upon the roots common to two equations, one linear, the other quadratic, or both quadratic, by the use of the corresponding graphs, illustrating how two solutions are to be expected in the one case and four in the other. The reasons for employing a particular method of elimination should be clearly brought out, so that the pupil may not proceed at random. He should not make the mistake of assuming that, in general, simultaneous quadratic equations may be solved by means of quadratics involving but one unknown.

Having spent so much time upon the review and extension of topics, for the most part belonging to high school algebra, and trespassed, too largely, I fear, upon ground assigned to another, I must pass rapidly over subjects more properly included in college algebra.

First, following the custom of many Continental and a few American authors, I would discuss and illustrate the new operation of passing to the limit, and would obtain the derivatives of algebraic and transcendental functions so far as to include [*sin x*, *cos x*, e^x, a^x and *log. x.*]

I would then take up indeterminate coefficients and their application to the development of functions. This would lead very naturally to the demonstration of Maclaurin's Formula and possibly Taylor's, of which the Binomial Formula would appear as a special case.

The discussion of infinite series, convergence and divergence, summation, might very profitably be brought in at this point. The instructor should assign a considerable number of problems in finding the values of numerical series, and of power series for assigned values of the variable with such accuracy of approximation as may be desired. The treatment of exponents and logarithms given in connection with number-systems should now be enlarged upon, the exponential and logarithmic series developed, methods of computing logarithms given, together with a good theoretical discussion of the subject.

To permutations and combinations I would assign comparatively little space, after having presented the fundamental ideas and theorems.

Choice and chance, probability, theory of numbers, I would omit entirely.

Of continued fractions I would give some of the most simple properties and illustrate their practical value in approximations.

We now reach the last subject to be discussed, one of great practical importance and needing to be presented with much detail, viz., the general theory of equations, especially those of the third and higher degrees.

Time will allow only a brief résumé of the principal propositions.

First we must establish the legitimacy of the standard form [$x^n + ax^{n-1} + - - - - = 0$, or $f(x) = 0$, where $f(x)$ is rational, integral, algebraic; then its continuity, using the graph as an illustration.

We demonstrate the fundamental theorem that $f(x) = 0$ has a root; that if $f(x)$ is of the nth degree the equation has n roots; that the equation can have no rational fractional root; that complex roots enter in pairs. We show how to change the signs of the roots, to multiply or divide, increase or diminish, the roots by a given number. We deduce the general relations between the roots and coefficients, Descartes's law of signs, the situation of the roots as shown by the sign of $f(x)$ for various values assigned to x, introducing graphic illustrations wherever feasible.

Then naturally follow the practical methods of determining the commensurable roots by the use of the factors of the absolute term and the remainder theorem; the highest common factor method of obtaining square roots, of theoretical interest principally; Sturm's method of determining the situation of the incommensurable roots and Horner's method of compuring their actual values with any required degree of approximate accuracy.

Horner's method should be set forth with considerable detail and its great importance, even for ordinary evolution, clearly brought out.

A section upon recurring equations, with the special case of binomial equations and the geometric interpretation of the roots of unity, can hardly be omitted.

Cardan's solution of cubics, with the solution by trigonometry, and Descartes's solution of quartics may be required at the teacher's discretion.

The following table of contents for a college algebra may be suggested:

Number system.
Fundamental rules.
Factoring.
Highest common factor. Lowest common multiple. Fractions.
Involution.
Evolution.
Ratio. Proportion. Variation.
Progressions.
Linear equations. Graphic methods. Discussion.
Determinants.
Quadratic equations. Graphic methods. Discussion.
Radical equations.
Higher equations solved as quadratics.
Function. Limits. Derivatives.
Indeterminate coefficients. Development of functions.
Maclaurin's and Taylor's Formulæ. Binomial Formula.
Series. Convergence and divergence. Summation.
Exponential and logarithmic series.
Permutations and combinations.
Continued fractions.
Theory of equations.

At the conclusion of this paper, it was suggested that the discussion might profitably be delayed until after the reading of the next, which was accordingly at once presented.

HINTS ON HIGH SCHOOL ALGEBRA.

PRIN. E. T. AUSTIN, OWOSSO.

I think no one will question the assertion that algebra and a few other subjects should hold important places in the high school, and that they out-rank still other subjects. We cannot tell our pupils this, but it is nevertheless true, that physics in the department of science, English in the department of languages, and algebra in the department of mathematics, take precedence over the other subjects in their respective departments of learning. I do not wish to be understood as throwing discredit on any of the work in the secondary schools, for I think it is all good or it would not be taught. It is around these subjects I have named that the less important ones cluster. We have the classical, Latin, scientific and English courses named from the leading study, in each of which mathematics is given a prominent place, because nothing else so well develops the power of logical thinking.

There are always two classes of pupils studying algebra: those who will use it in after life, as an instrument of their profession,—engineers, teachers and scientists; and those who will not so use it,—the large class of non-professional people. To the first class high school algebra is important that the foundation for advanced mathematics may be well laid; to the second class, that the habit of exact statement and logical demonstration and conclusion may be acquired. This last statement might be applied equally as well to the first-class, if it were not included in the first statement.

To the teacher who is conversant with the many phases of the subject, and is alive to all opportunities of leading pupils' minds into channels of right thinking, there seems to me no better chance for his skill. No group of teachers ever met without saying something about the laboratory method of instruction. We are told that the student must be brought face to face with the facts; he must do certain things with the apparatus given him, and in so doing he puts a direct question to nature. In the hands of the skilful teacher the class-room in mathematics is a laboratory of logic; and for those trained in such a laboratory, there is an unlimited demand.

It seems that algebra should be treated in such a manner that the logical relation of each subject may make an irrefutable line of argument throughout; but it often happens that the logical arrangement may not be the easiest for immature pupils. In such cases a deviation from such an order may be best, to be determined by the teacher; but subsequent reviews should be taken to complete the line. The pupils should be early impressed with the idea that certain definitions and theorems are absolutely necessary, not as isolated truths, but as parts of a foundation for a structure that becomes more complex as the work advances. I do not think we make enough of learning definitions. The educational value of acquiring exact words of a definition or proposition cannot be overestimated. There is no other subject taught in the high school where the language is so exact, elegant, and forcible as in mathematical subjects. They are the broad generalizations of ages of thought; and when their pure English becomes a part of the pupil's vocabulary, he is in possession of a force of inestimable value.

To come at once to the discussion of the subject, I cannot but think that many teachers make a grave mistake by putting their pupils into practice work before devoting a considerable time to definitions and principles. I will admit that a good deal of this work may be done with a considerable degree of facility, but it is not satisfactory; it considers but lightly one of the most important arguments for the teaching of the subject,—logical training and exactness of statement. This kind of work might be done in the grades, but in the high school we are to deal with more mature minds and have a right to assume that they have completed arithmetic.

My experience as a pupil, and later as a teacher, has led me to question the ready understanding of literal notation; and yet this work is often hurriedly gone over. The live teacher will find no trouble in illustrating the process of denoting numbers by letters, but it is only after repeated reviews and drills that he can be assured that it is clearly understood. The laws of order and grouping should be clearly stated and proved. It is in the very beginning of the subject that the pupil should be shown the limitations of arithmetic. I do not think it is out of place after two or three months of study to explain the process of imperfect induction. We may show, for example, that if a and b are two quantities and we square their sum, we get the square of the first number, plus the square of the last, plus twice the product of the two. Let $a = 7$ and $b = 5$; applying the rule the answer is found to be 144. To show that this holds true of 5 and 6, we must apply the rule again and then to every other case that may arise. No number of cases will add any certainty to the rule algebraically, since no condition of the process restricts the result to special cases. It is here again that the limitations of the two subjects may be

We are now led to consider inverse operations. Thus subtraction is the inverse of addition, division the inverse of multiplication, etc.

To subtract from a number a a second number b is to find a third number c, which added to b or increased by b, shall reproduce a. Subtraction is possible only when a is greater than b. Its formal rules are the immediate consequence of definitions and laws previously established.

To divide a number a by a number b is to find a third number c, which multiplied into b, or multiplied by b, shall reproduce a. Division obviously is possible only when a is a multiple (so-called) of b. By subtracting the number b from the number a, as often as possible, the remainder, if any, from b, and so on, we attain the notions of highest common factor, prime number and others of considerable importance in dealing with fractions.

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The question now arises, can we interpret division when the dividend is not a multiple of the divisor, subtraction when the minuend is not greater than the subtrahend, evolution when the original number is not an exact power of the degree desired.

A satisfactory answer to each of these questions requires the introduction of a new system of units. For division we introduce units such that two, three, or more, shall reproduce one of the original units and define all operations with these in conformity to the laws previously established. We are then prepared to deal with fractions.

For subtraction we introduce a new unit which shall have the effect of annulling one of the original units, or such that a number a increased by an original unit and the corresponding new unit shall remain unchanged. Again we define operations with these units in conformity to the laws governing operations with positive integers and are led up to the new law, the law of signs. Negative numbers are now under our control.

The numbers already obtained, whole numbers and fractions, both positive and negative, including zero, constitute the system of rational numbers.

The geometric representation of these numbers, as distances measured forward or backward from a fixed point upon an indefinite straight line, should be recalled and insisted on.

To determine the number whose positive integral power shall be equal to a positive integer which is not an exact power of the degree indicated, requires the introduction of the so-called irrational numbers.

A scientific treatment of these numbers is by no means easy, and the ablest mathematicians are not at all agreed in the details. The irrational number is usually defined by a sequence of rational numbers. Thus the $\sqrt{2}$ would be defined by the sequence 1, 1.4, 1.41, 1.414, 1.4142, 1.41421, etc. The laws governing these sequences must be such as still to hold when rational numbers are defined by them.

Numbers rational and irrational constitute the system of real numbers. We notice now that there is a one-to-one correspondence between real numbers and points on the right line previously mentioned; i. e., corresponding to every real number there is a unique point upon the right line, and, reciprocally, corresponding to every point upon the right line there is a unique real number.

To determine the number whose positive even power is equal to a given negative number, we must introduce a new unit, the so called imaginary. We may define the new unit i, by the equations $i^2 + 1 = 0$, or $i^2 = -1$. Any number of the form bi, where b is real, is called a pure imaginary. If the number under consideration takes the form $a + bi$, where a and b are real, it is called a complex number by reason of its being made up of two distinct units. Two complex numbers, $a + bi$ and $[a^1 + b^1 i]$, are defined as equal when the real parts are equal, and also the imaginary parts. The definitions of the addition, subtraction, multiplication and division of complex numbers can now be laid down in conformity to the laws previously established.

The conventional geometric representation of the complex number is obtained by assuming a horizontal and a vertical line, laying off the real part to the right or left of their intersection, the imaginary part upward or downward from the same point, and drawing parallels through the points thus obtained. The complex number is represented either by the intersection of the parallels or by the vector joining the origin to this point.

Geometric interpretations of the addition, subtraction, multiplication, and division of complex numbers can be deduced without serious difficulty. There is a one-to-one correspondence between the complex numbers and points in the plane of the lines selected.

In the discussion of involution attention was directed to the factors rather than to the exponent (so called) of the power. It is important to see what interpretation, if any, can be devised for the cases when the exponent is no longer a positive integer; i. e., when it is a fraction, a negative number, etc. Since $a^m \times a^n = a^{m+n}$ when m and n are positive integers, if the above index law is to hold in general, $a^{1/2}$ must be so defined that $a^{1/2} \times a^{1/2} = a^1 = a$; i. e., $a^{1/2}$ is a square root of a. Again, $a^{1/3}$ is a cube root of a. Similarly a^{-m} must be defined as to equal $\frac{1}{a^m}$ and a^0 to equal 1.

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Through all this it should be continually borne in mind that in laying down our definitions of operations with fractions, negative numbers, irrational, and complex numbers, we have been guided by the fundamental laws governing operations with positive integers.

Having thus cleared the ground, we are ready to make a rapid review of the applications of these laws. This review may be prefaced by a simple discussion of algebraic functions, bringing out especially the notions of homogeneity and symmetry.

To the examples under the fundamental rules I would give but few answers, requiring the student in every case to test his results by performing the operations in a different order when possible, by the substitution of numerical values, by considerations of homogeneity and symmetry, by inverting the operations, and so on, till he became thoroughly self-reliant. In multiplication I would use the sigma notation when convenient, and detached coefficients; in division detached coefficients and the synthetic method, especially with a binomial divisor. In factoring much should be made of the remainder theorem, both for the establishment of funda-

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Linear equations involving but one unknown will require little new treatment. In dealing with linear functions of two variables I should introduce the elementary ideas of analytic geometry so far as necessary to construct the right line represented by $ax + by + c = 0$, noticing how the equation is satisfied by an infinite number of pairs of values of x and y and how the solution of two independent simultaneous equations such as $ax + by + c = 0$ and $[a^1x + b^1y + c^1 = 0]$, is the same as determining the coördinates of the intersection of the two lines.

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Radical equations (so-called) may be treated in this connection rather fully, the various methods of simplifying them being carefully discriminated. The student should be warned that involving to powers or multiplying by factors containing the unknown, will introduce extraneous roots.

In the solution of higher equations by the methods of quadratics a number of roots equal to the degree of the equation should always be secured. Great light will be thrown upon the roots common to two equations, one linear, the other quadratic, or both quadratic, by the use of the corresponding graphs, illustrating how two solutions are to be expected in the one case and four in the other. The reasons for employing a particular method of elimination should be clearly brought out, so that the pupil may not proceed at random. He should not make the mistake of assuming that, in general, simultaneous quadratic equations may be solved by means of quadratics involving but one unknown.

Having spent so much time upon the review and extension of topics, for the most part belonging to high school algebra, and trespassed, too largely, I fear, upon ground assigned to another, I must pass rapidly over subjects more properly included in college algebra.

First, following the custom of many Continental and a few American authors, I would discuss and illustrate the new operation of passing to the limit, and would obtain the derivatives of algebraic and transcendental functions so far as to include [*sin x*, *cos x*, e^x, a^x and *log. x.*]

I would then take up indeterminate coefficients and their application to the development of functions. This would lead very naturally to the demonstration of Maclaurin's Formula and possibly Taylor's, of which the Binomial Formula would appear as a special case.

The discussion of infinite series, convergence and divergence, summation, might very profitably be brought in at this point. The instructor should assign a considerable number of problems in finding the values of numerical series, and of power series for assigned values of the variable with such accuracy of approximation as may be desired. The treatment of exponents and logarithms given in connection with number-systems should now be enlarged upon, the exponential and logarithmic series developed, methods of computing logarithms given, together with a good theoretical discussion of the subject.

To permutations and combinations I would assign comparatively little space, after having presented the fundamental ideas and theorems.

Choice and chance, probability, theory of numbers, I would omit entirely.

Of continued fractions I would give some of the most simple properties and illustrate their practical value in approximations.

We now reach the last subject to be discussed, one of great practical importance and needing to be presented with much detail, viz., the general theory of equations, especially those of the third and higher degrees.

Time will allow only a brief résumé of the principal propositions.

First we must establish the legitimacy of the standard form [$x^n + ax^{n-1} + - - - - = 0$, or $f(x) = 0$, where $f(x)$ is rational, integral, algebraic; then its continuity, using the graph as an illustration.

We demonstrate the fundamental theorem that $f(x) = 0$ has a root; that if $f(x)$ is of the nth degree the equation has n roots; that the equation can have no rational fractional root; that complex roots enter in pairs. We show how to change the signs of the roots, to multiply or divide, increase or diminish, the roots by a given number. We deduce the general relations between the roots and coefficients, Descartes's law of signs, the situation of the roots as shown by the sign of $f(x)$ for various values assigned to x, introducing graphic illustrations wherever feasible.

Then naturally follow the practical methods of determining the commensurable roots by the use of the factors of the absolute term and the remainder theorem; the highest common factor method of obtaining square roots, of theoretical interest principally; Sturm's method of determining the situation of the incommensurable roots and Horner's method of compuring their actual values with any required degree of approximate accuracy.

Horner's method should be set forth with considerable detail and its great importance, even for ordinary evolution, clearly brought out.

A section upon recurring equations, with the special case of binomial equations and the geometric interpretation of the roots of unity, can hardly be omitted.

Cardan's solution of cubics, with the solution by trigonometry, and Descartes's solution of quartics may be required at the teacher's discretion.

The following table of contents for a college algebra may be suggested:

Number system.
Fundamental rules.
Factoring.
Highest common factor. Lowest common multiple. Fractions.
Involution.
Evolution.
Ratio. Proportion. Variation.
Progressions.
Linear equations. Graphic methods. Discussion.
Determinants.
Quadratic equations. Graphic methods. Discussion.
Radical equations.
Higher equations solved as quadratics.
Function. Limits. Derivatives.
Indeterminate coefficients. Development of functions.
Maclaurin's and Taylor's Formulæ. Binomial Formula.
Series. Convergence and divergence. Summation.
Exponential and logarithmic series.
Permutations and combinations.
Continued fractions.
Theory of equations.

At the conclusion of this paper, it was suggested that the discussion might profitably be delayed until after the reading of the next, which was accordingly at once presented.

HINTS ON HIGH SCHOOL ALGEBRA.

PRIN. E. T. AUSTIN, OWOSSO.

I think no one will question the assertion that algebra and a few other subjects should hold important places in the high school, and that they out-rank still other subjects. We cannot tell our pupils this, but it is nevertheless true, that physics in the department of science, English in the department of languages, and algebra in the department of mathematics, take precedence over the other subjects in their respective departments of learning. I do not wish to be understood as throwing discredit on any of the work in the secondary schools, for I think it is all good or it would not be taught. It is around these subjects I have named that the less important ones cluster. We have the classical, Latin, scientific and English courses named from the leading study, in each of which mathematics is given a prominent place, because nothing else so well develops the power of logical thinking.

There are always two classes of pupils studying algebra: those who will use it in after life, as an instrument of their profession,—engineers, teachers and scientists; and those who will not so use it,—the large class of non-professional people. To the first class high school algebra is important that the foundation for advanced mathematics may be well laid; to the second class, that the habit of exact statement and logical demonstration and conclusion may be acquired. This last statement might be applied equally as well to the first-class, if it were not included in the first statement.

To the teacher who is conversant with the many phases of the subject, and is alive to all opportunities of leading pupils' minds into channels of right thinking, there seems to me no better chance for his skill. No group of teachers ever met without saying something about the laboratory method of instruction. We are told that the student must be brought face to face with the facts; he must do certain things with the apparatus given him, and in so doing he puts a direct question to nature. In the hands of the skilful teacher the class-room in mathematics is a laboratory of logic; and for those trained in such a laboratory, there is an unlimited demand.

It seems that algebra should be treated in such a manner that the logical relation of each subject may make an irrefutable line of argument throughout; but it often happens that the logical arrangement may not be the easiest for immature pupils. In such cases a deviation from such an order may be best, to be determined by the teacher; but subsequent reviews should be taken to complete the line. The pupils should be early impressed with the idea that certain definitions and theorems are absolutely necessary, not as isolated truths, but as parts of a foundation for a structure that becomes more complex as the work advances. I do not think we make enough of learning definitions. The educational value of acquiring exact words of a definition or proposition cannot be overestimated. There is no other subject taught in the high school where the language is so exact, elegant, and forcible as in mathematical subjects. They are the broad generalizations of ages of thought; and when their pure English becomes a part of the pupil's vocabulary, he is in possession of a force of inestimable value.

To come at once to the discussion of the subject, I cannot but think that many teachers make a grave mistake by putting their pupils into practice work before devoting a considerable time to definitions and principles. I will admit that a good deal of this work may be done with a considerable degree of facility, but it is not satisfactory; it considers but lightly one of the most important arguments for the teaching of the subject,—logical training and exactness of statement. This kind of work might be done in the grades, but in the high school we are to deal with more mature minds and have a right to assume that they have completed arithmetic.

My experience as a pupil, and later as a teacher, has led me to question the ready understanding of literal notation; and yet this work is often hurriedly gone over. The live teacher will find no trouble in illustrating the process of denoting numbers by letters, but it is only after repeated reviews and drills that he can be assured that it is clearly understood. The laws of order and grouping should be clearly stated and proved. It is in the very beginning of the subject that the pupil should be shown the limitations of arithmetic. I do not think it is out of place after two or three months of study to explain the process of imperfect induction. We may show, for example, that if a and b are two quantities and we square their sum, we get the square of the first number, plus the square of the last, plus twice the product of the two. Let $a = 7$ and $b = 5$; applying the rule the answer is found to be 144. To show that this holds true of 5 and 6, we must apply the rule again and then to every other case that may arise. No number of cases will add any certainty to the rule algebraically, since no condition of the process restricts the result to special cases. It is here again that the limitations of the two subjects may be

brought into strong contrast. I have found no trouble in arousing interest in the mind of the dullest boy for mathematical work by showing, whenever possible, the generality of algebraic reasoning by which a property is proved of infinite varieties of numbers at once. Even the boy who sees no sense in algebra from the utilitarian standoint, is impressed with the idea that there are other and just as noble reasons for going to school; and should not the two classes be labored with until they are well on the road of self-development.

The majority of a class of beginners fail to get a clear idea of the signs of a fraction. They should be drilled thoroughly on a number of cases as follows; the sign that precedes the line between numerator and denominator, the sign of each term of the numerator, the sign of each term of the denominator, and the sign of each term of the quotient. Another case more complex than the others should come in for some careful attention, and that is the case in which the terms are made up of a number of factors. If much care has been exercised in the use of the parenthesis and the pupils are led to consider the dividing line as a parenthesis, some of the trouble will disappear. Showing the similarity of this subject with the corresponding one in arithmetic, will simplify the work to a great extent.

Let me turn for a moment to the bearing algebra has on the subject of physics. No one who has taught this subject has failed to notice the trouble many students have in trying to use the equation in working out problems in physical science. Suppose the pupil be required to determine the time of a freely falling body that has passed over s feet. He has the law that the total space passed is found by multiplying one-half of the acceleration due to gravity by the square of the time. From the lack of knowledge of expressing quantities and their relations in symbols he cannot write the formula. When given the equation and asked to express t in terms of g and s, he is at a loss what to do; but substitute x or y for t and he at once solves the equation. This is algebra outside of the text-book on algebra; to him it is out of place, and to find it thus is not to know it. It seems from this that the students have a false idea of literal notation,—that some letters stand for widely different things than others. Such relations as are expressed in Boyle's Law, that the volume of a gas varies inversely as the pressure, other conditions being constant, may also be expressed in the form of an equation, $-P \times V =$ constant quantity. Much valuable work may be done on an expression of this form in finding the changes that may be made upon the term and still retain the relation. I cannot recall a case in a physics class where a pupil has not fallen into the error of adding to one term, when changes must be made, and subtracting from the other to restore the equality. This form of the equation could be treated under the theory of variation. No one knows better than the teacher of physical science the value of algebra to physics; and it would seem of more value to put time on this part of the work, in place of attempting what belongs to higher algebra. The limited treatment of proportion in algebra would lead one to think that it was not of great importance in other branches of mathematics nor in physical science. I know of no part of algebra that finds so great an application in physical science as proportion. In this part of the subject we see again the necessity of a mastery of definitions and principles. Discourage the idea brought from arithmetic, that all expressions and problems must be reduced to the general expression that the product of the means is

equal to the product of the extremes. In the demonstration of the propositions the idea may be made clear by substituting numbers for quantities. The tendency of the mind is to connect each new idea with something more concrete, and here the imaginary process is still carried on with some difficulty. The subject of variation may be treated after proportion, since it is so closely connected with proportion.

I have not spoken of factoring nor of the equation except in one form, since the text books and teachers put a great deal of emphasis on these very important subjects. I do not think we ought to attempt in our treatment of the equation more than is given in Olney's or Taylor's complete algebras. In the treatment of series, there is a tendency in the secondary schools to take up more than arithmetical and geometrical progression. I think we ought not attempt more than this. The discussion of the binomial theorem with respect to fractions and negative exponents, logarithms, permutations and combinations, and continued fractions, might be left for higher algebra. Attempt fewer portions of algebra and do the work more thoroughly.

There are a number of wastes in teaching algebra; among these are the permitting of a partly learned lesson to pass, thus weakening those to follow. The essentials of each lesson should be mastered, that the line of communication back to the foundation principles may be unimpaired. In this connection may be mentioned the fault of taking too little drill upon first principles before proceeding to the application. As a second fault may be mentioned the lack of certainty in the thorough preparation of the lesson. The teacher can not be sure of this, unless a large amount of board work is done. Work should be put on the board quickly, that there may be plenty of time for explanation by pupils, and criticism by class and teacher.

In our school work I know of no nobler ideal to keep in mind than to foster a spirit of self-development and self-satisfaction on the part of the student. No pupil is content with a lesson half learned or work poorly done. He may in time acquire the habit of easing his mind about the slack ways; but not until the teacher insists that only the best will be accepted, will he put forth his best effort. How may this be brought about? There are a number of expedients by which this much desired result may be attained. Insist upon accuracy in statement and operation. Give at least two-thirds of the credit for neatness and accuracy, and let the class understand that little will be given for method, if the correct result is not obtained. In after life our students will be measured by the results they achieve and the accuracy of those results, rather than by the method by which the results are brought about. I have talked with many of our graduates after they have been out of school a year or more, and to a unit they have expressed the wish that their teachers had held them to a stricter account in all their school work.

I am so firmly impressed with the idea that we do not deal properly with the dull or slow thinking boy that I have studied his case more closely than any other in secondary work. It is so easy to dismiss his case as one upon which you cannot spend time, but I do think this is contrary to the high ideal that we should have before us. It is in algebra that pupils of this class are more often lost and discouraged, and I make a plea for them that they be given the well-chosen help that will set them aright. Let us try to put ourselves in their place, to stand where they stand, that we may see the difficulty from their point of view.

DISCUSSION.

Opened by E. C. GODDARD of Ann Arbor.

Mr. Goddard made a strong plea against the idea of shortening the time allowed to algebra. He felt it to be necessary that the subject be allowed time to become thoroughly assimilated. To this end the alternating plan was suggested for algebra and geometry. A live teacher who required pupils to think rather than memorize, was the fundamental necessity. The principal points made were as follows:—

The matter of first importance is the *preparation of the teacher*. Phillips Brooks tried to dissuade Canon Farrar from lecturing on his impressions of America. "You have no impressions," said Bishop Brooks, "and those you have are all wrong." It is not too much to say that no small number of our high school algebra teachers have no impressions of algebra, as a subject, and those they have are dangerous. They get their lessons from day to day, as their pupils do, and even those who study other texts than the one in use go only to books of equal grade. Thus their horizon is limited to the day, or at most the year, in which they live, and their view of the limited portion of the subject is often seriously clouded. A teacher in one of our high schools that ranks well in the State, after teaching from Olney's algebra several years, asked a friend of mine what she did with certain problems in that text. She was greatly surprised to find they could be solved, saying she had always told her classes they were unsolvable.

It is of utmost importance, if algebra is to be alive to pupils, that the teacher draw knowledge from fountains far above the plane on which the work is being conducted. How it would widen their horizon and deepen their understanding if our teachers were in intimate acquaintance with such works as Chrystal's "Text Book of Algebra," and Ball's "History of Mathematics." First, then, I make the point that there is urgent need that our teachers secure a *broader knowledge and a far higher knowledge, as one prime requisite that they be allowed to teach the subject at all.*

Second in importance is the selection of topics. In my opinion this should be dependent on local conditions of the school and class. In every school and in every class the fundamental processes, such as factoring, fractions, radicals, quadratics, proportion, should receive such emphasis and such extended application as to stand out clearly in every pupil's mind. This, done other matters may receive attention as circumstances permit. The paper just read very wisely insisted on accuracy and definiteness in all that is attempted. Not too many topics, not all that might be profitable, should be considered. Locus of equations, determinants, symmetry, permutations, combinations, all are extremely interesting, but not all should be given to one class. A few carried to their possibilities will surely bring better results than a bird's-eye view of the whole range. The teacher can add to his own inspiration and freshness of presentation by varying the selection from year to year.

Third we might mention the use of problems and demonstrations. Let the former be many in number, practical and typical in character (not puzzles), and as far as possible miscellaneous in selection. As soon as any new topic is sufficiently illustrated by a set of examples of a given kind to give facility in the use of the principle, let a miscellaneous list of problems follow, with no label to indicate the rule by which they are to be solved, but involving all the principles thus far set forth in the work. Such work will train independence of thought and judgment. Pupils will learn that each problem contains its own solution, and also how to find it.

On the matter of the use of demonstration I hold that, if more systematic work in that direction were done in the algebra, the pupils would acquire for better preparation for the work in geometry. Geometry from its nature has a maximum of demonstration with a minimum of application, while high school algebra may well have a minimum of demonstration and a maximum of application; but that minimum is not zero, and it should be well and systematically done. Probably it is wise to introduce it almost imperceptibly with the beginner; but before the algebra is left, the pupil should feel that there is a proof for every important principle used, and that he is expected to be able to give it.

The last point is in my opinion of very great importance. I mean the matter of a review late in the course. If the work in algebra can be well distributed through the four years of the high school, there will be time for assimilation. There may not seem to be as good results at the time from recitations twice or three times a week, for two years, as from daily recitations for a year. But I am satisfied that the subject will be much better retained by the former plan. At all events the maturity of the senior year is needed for the mastery of many of the more difficult principles and pro-

cesses, and a thorough review should come then. This is of great importance to the student preparing for college. Not a few Freshmen come to grief because this was not done for them. For this review many subjects not needed in the earlier work, may properly and profitably be reserved. By no means let it be merely a threshing over of old straw. Vivify, freshen, inspire it, and not so many of our students will go forth with that unfortunate impression that they hate mathematics.

PROF. SMITH followed, saying that it was a pleasure to have brought before the meeting, with the stamp of the University upon it, the modern and scientific notions of elementary algebra. Among these was the idea that the meaning of negative and fractional exponents was a matter of definition and not of proof, as was so often thought. He agreed with Mr. Austin's idea of learning definitions only so far as the definitions were exact and capable of being understood; he asserted there was probably not a person present who would feel like attempting to define the terms *algebra*, *number*, *quantity*, *root*, or any of a multitude of other simple terms met at the beginning of the arithmetic. In reply to a question as to "individualism" in education, the speaker referred to the work of Mr. Search and Mrs. Holbrook, and asserted that there was a great deal of "individualism" in the work of most good teachers of mathematics. In reply to a question as to where students leaving the high school were most deficient, Professor Smith remarked that it seemed to be in readiness of attacking fractional equations, simple and quadratic.

The third paper was read by Miss Ada Van Stone Harris of the State Normal School upon the topic "Arithmetic in the Grades." The paper was received with applause and the discussion at once opened by Mrs. Therese Townsend of Grand Rapids, the two most important points brought out being as follows:

1. The natural tendency of the child is to grasp numbers at an early age, yet numbers as a science should not be taught on his first entering school.

2. There is great need of systematic work in mental arithmetic, and great good is derived from such work.

Prof. Smith inquired whether Mrs. Townsend was satisfied with the results of postponing formal arithmetic until the middle of the first year. Mrs. Townsend replied that the results had been satisfactory.

Dr. Boone took up the discussion of this point and maintained that results equally satisfactory might, in his opinion, be obtained by postponing formal arithmetic until the second year, bringing in only what was incidentally necessary during the first year. He inquired if any one could explain how it happened that oral, or mental arithmetic, which is the foundation of all arithmetic, should ever have lost its hold on the schools so completely as it has.

Prof. Smith replied that it came about 1500, when the Hindu numerals supplanted the Roman in the schools. The great advantages of the place-value in handling large numbers brought such numbers more prominently into the schools; oral arithmetic became impossible in this new field of extended number, hence it lost its hold and was not introduced again until about 1800, since which time it has come back by degrees. On the question of postponing formal arithmetic, the speaker would feel like taking issue with the two preceding speakers, were it not for the fact that he was convinced arithmetic would be taught in the first year, even in their plan, although possibly by a different name.

Supt. H. T. Blodgett of Ludington, contributed to the discussion. He was heartiy in favor of conservative reform in the teaching of arithmetic in the grades. He believed that too much time had been given to arithmetic in the past, in view of the results obtained; and he welcomed the idea of introducing algebra and some constructive geometry into the work of the grammar school.

After some further remarks by other teachers the meeting adjourned to allow informal discussion and social conversation.

COMMISSIONERS' SECTION.

When Commissioner Ransom of Genesee county, called this section to order, the committee room was crowded to overflowing, and standing room was at a premium all through the lengthy session.

The roll being called, showed commissioners present from the following counties: Barry, Bay, Benzie, Branch, Eaton, Genesee, Hillsdale, Huron, Ingham, Ionia, Jackson, Kalamazoo, Lapeer, Leelanau, Midland, Monroe, Montcalm, Montmorency, Newaygo, Oceana, Ogemaw, Saginaw, Tuscola, Van Buren, Washtenaw, Wayne.

SUPT. A. J. MURRAY of the State Public School at Coldwater, asked permission to address the meeting a moment before the program was taken up, and said:

Ladies and Gentlemen—You may wonder why I should care to make an announcement concerning the work of the State Public School to this organization, but when you remember that we are all striving in a work for humanity, in a work for the children that need the help of those who are able to help them, and consider for a moment that the children of the State Public School are placed in homes throughout this State, you can see that any body of men and women who are passing about through the country must be able to give much help concerning matters that are of vital interest to our boys and girls.

As you know, the State Public School takes only those who are without a home in the truest sense of the word. We have placed in homes throughout the State 3,600 children. Of these 2,400 are already self-supporting citizens; 1,200 of our children are within your counties in some body's home, receiving, in general, good treatment. Occasionally it happens, however, that you in your observation in the district schools find a child of ours who needs a little personal attention. This is the thought I wish to leave with you. We have in each county a truant officer whose business it is to look after that child and to whom I would refer you. I wish that I might know each one of the county commissioners, and that you might feel that at any time correspondence would be welcome. It is unfortunately the case once in a great while that a county truant officer has so much work to do he cannot pass about the county often enough to see to all the children. If you discover anything of this character, I ask you earnestly to see to it that any wrongs are righted quickly. Also, if you find a home where parents would be kind and helpful, kindly advise us. We have about two hundred children who are in need of good homes. I mean that in every sense of the word. What we wish is homes for the children where they will have good care; and I ask your coöperation in this work, which to me seems one of the greatest works that God ever put into the hearts of man to accomplish.

PRESIDENT RANSOM then addressed the meeting as follows:

Fellow Commissioners and Examiners—It is with a considerable degree of pleasure that I greet so many of you here today, and I trust and believe that this meeting will be a profitable one for us.

Some years ago, at least before I became a member of this Association, it became customary for the president to deliver an address. Your Executive Committee informed me that this would be expected this year, so you will have to bear with me.

For more than a dozen years we have spent a portion of our vacation at this merry season of the year in attendance upon these annual gatherings. During these years we have heard discussed nearly, if not quite all, phases of our educational system, both state and national. The pedagogical, literary, and scientific sides of our system have perhaps received the major portion of attention. Many methods and plans have been brought forward for the betterment of the schools, and some have proved practical, others not so practical. The past has been quite thoroughly analyzed and the future somewhat anticipated. Address after address, and paper after paper go to make up the records of our proceedings,—essaying, outlining, advocating, and urging the better preparation of the teacher for his or her duties. In fact this question has become what is now-a-days termed a "fad." It has received the attention of the learned from every quarter of our land. There is no doubt concerning the growth and good results which have come from all this agitation and discussion. The consensus of opinion everywhere is, I think, that our progress in educational matters has been onward and upward. These meetings have crystallized public opinion into statutes which have assisted much and will aid more in advancing our cause. But, my fellow commissioners, while this side of our structure is grand, imposing, perhaps sublime, in our humble judgment our foundation is faulty; and this side to which we have directed our greatest efforts and best thoughts is already greatly in advance of that which must and will receive our attention later on, if our common school system ever reaches that perfection which we all hope to have it attain. Someone has said, "We could afford to abolish our universities and colleges, but could not afford to abolish our common schools." And as we, the commissioners, are regarded by many in the light of sponsors, directors, and promoters of this system, I trust we may deliberate wisely and well, and possess that wisdom, sagacity, and prudence which will prevent this more shapely and imposing side of our structure to which I have referred, from yet toppling over and overwhelming that portion of our system which must soon receive our undivided efforts. As one of my brothers is pleased to term it, we are not yet out of the "low vaulted past" by any means; and not the more stately, but the most stately mansion is still, in my opinion, to be constructed.

Again, during these years we have seen the common school system merge from the vitiating, unsystematic, and non-progressive township supervision into a more progressive and vigorous county organization, which at the present hour gives much promise of an abundant fruitage and a glorious future. Indeed, my fellow workers, during the past four or five years our progress has been somewhat remarkable. In fact, it would almost seem to a close observer that in some counties, at least, the work had almost, if not quite, reached the goal of our ambition—almost perfection. But if you will carefully and thoughtfully peruse the proceedings of the annual meetings of the county superintendents held in the latter sixties and early seventies, you will at once discern that the range of topics considered did not differ to any material extent from ours of today. The character of the annual reports of the county superintendents of those years to the State department is tinctured very strongly with the same flavor as ours. For scholastic culture, for clearness of mental perception, for breadth of observation and logical thinking, the men who represented the various counties of our Commonwealth in those meetings were, with all due respect to my brethren, quite our peers. There are those who sit

in this hall today whose memory reverts back with pleasure, perhaps the younger of us not so distinctly, to the splendid labor and supervision of a Briggs, a Putnam, a Goodman, a Gower, and many other of their associates. But some of you may say there has been a great change of sentiment in the intervening years. All things are different now—our environments better, more enthusiastic teachers, and broader and more progressive patrons. But permit me briefly to call your attention to the reports of those years.

Supt. H. B. Fallas of Kent county, in his report to the department in 1871, said:

"The year just closed has not only witnessed better schools than usual in this county, but those schools have been more satisfactory to the people. There have been but very few failures,—less than one-fourth as many as during any previous year for a number of years. The interest of the people in the cause of education appears to be steadily increasing. Quite a number of our district schools are now engaging their teachers by the year instead of for single terms, as has hitherto been the practice; and in many cases where this is not done directly, it is virtually, by employing the same teacher for several terms."

And the report of Supt. Geo. H. Wheeler of Washtenaw county, of the same year, included the following:

"The people have begun to learn, next to having the necessary literary qualifications, that the teacher should be apt to teach, earnestly devoted to his calling, love his pupils, sympathize with them in their sorrows and trials, at all times bearing in mind that he stands in the place of an intelligent and anxious parent; that he is filling one of the most important and responsible stations that society can confer or man occupy, and should be impelled by a high-reaching ambition to excel; that he should not only be prepared upon entering, but he should be sure to make a yearly growth so long as he pursues it; that when he falls into old ruts or on the tread-wheel of routine, and goes on term after term repeating the same thing in the same way, that when he reaches this stage of stagnation—however excellent the forms into which he has been petrified, he ceases to be an excellent teacher, and in most cases he is no longer even a good one; that when a teacher neglects to discuss questions of teaching, to attend teachers conventions, institutes, and associations, to read educational journals and publications, and to make some regular preparation out of school for the duties in it, it is high time that his name should be stricken from the educational pay-roll and he retire to a more congenial calling."

I will leave it to you, fellow Commissioners, whether the above savors at all of the doctrine we are advocating twenty years later.

But some of you may say my county is now completely graded; I have the best and most thoroughly energetic and cultured teachers; large and enthusiastic reading circles for both teachers and pupils. My institutes are all of an inspiring character attended by every teacher in the county; the citizens are imbued with my good work and heartily coöperate in the grand march for the uplifting of the schools and the cause of humanity; surely, my work will be as enduring as the hills.

But, my brothers, just on the eve of the meeting of the legislature of 1874, State Superintendent of Public Instruction Daniel B. Briggs, in his report to the Governor, said:

"Reports showing the results of the labors of our county superintendents during the past year, are herewith transmitted, from which it will appear that a gradual, but very perceptible improvement in the general condition of the schools is in progress; that the standard of qualification for teachers has been advanced; that an increased interest on the subject of education has been manifested on the part of the public generally; that more enlightened and efficient modes of mental discipline are becoming prevalent,—old prejudices disappearing—and the paramount importance of a general diffusion of knowledge more widely appreciated. Perhaps it is not claiming too much for these reports to characterize them as the most valuable documents, in reference not merely to the actual condition and future prospects of our common schools, but to the means and ends of educational science in general, which have heretofore at any time been forwarded to this department. The State has done its duty in providing means for the education of every child within its borders, in preparing and maturing a system second to none, and in confiding the administration of that system to intelligent and responsible agents, emanating directly from and accountable immediately to the people. The means, the system, and the agents for its administration having thus been secured, it remains only that the whole people for whose benefit and that of their children, all these priceless advantages have been secured, should cordially and efficiently coöperate with their agents in giving vitality and perpetuity to our grand educational system."

In the same report he treats the township unit system in a masterly manner, the reading of which is as refreshing and invigorating as the recent report issued by the National Teachers' Association upon the same subject. Notwithstanding this, that noble band of *statesmen* wiped the whole system out of existence with as little compunction as the axman weilded the guillotine during the Reign of Terror. After all these years we are still in swaddling clothes, and the vision of the most prophetic cannot speak to any authentic degree touching the future. If I interpret the records of their deliberations aright, we have but little more than redeemed the vantage ground held by them when they were overwhelmed and swallowed up by that avalanche of legislation. They argued for uniformity of text-books; so have we. They labored toward a uniform, systematic, grading of the schools; so do we, only we have carried the work a trifle farther. Like ourselves, they petitioned and sought by every practical means at their command to secure better and needed legislation for the common schools, but of course were not successful. They, like my brother from Barry in his most excellent address from this desk two years ago, demonstrated the necessities of better and more thorough preparation of the teacher for the duties of the school room; and in many counties the high schools were partially converted into training schools for this purpose. And lastly, my brethren, the wisdom of their experience taught them that the township unit system must be forthcoming before the object of their ambition could be accomplished; yet, while they were debating the best methods to secure it, they were legislated out of office.

The same questions and obstacles which engaged their attention in seventy-five, confront us in ninety-five. Notwithstanding the splendid condition of affairs to be found in many of the counties today, some almost reaching perfection perhaps, yet I do not believe there is a single commissioner who is not continually annoyed by the evil effects of that

childless patriot, wandering forth like Diogenes of old, not, however, in search of an honest man, but a cheap teacher. To rid the common school system of the evil influence of this damaging and objectionable parasite, is one of the chief reasons of our gathering to-day. From my study and observation of this question, however, I am of the opinion that the northern counties do not suffer so much from this source as do we in the older and southern counties, where the schools are composed largely of the children of tenants on landed estates.

But it needs no argument on my part to convince you, because all present, I think, readily concur with me that our school system must be delivered from this deplorable feature before it can reach that acme of perfection which we hope some day to see it attain—that pre-eminent degree of usefulness and helpfulness which it ought to enjoy, but has so long been denied. The mere fact of reducing the number of our school boards would not, in my judgment, suffice in removing all the obstacles incident to the advancement of the schools. Where is the consistency of requiring such exacting qualifications on the part of those who instruct, and not require a single clause as to the fitness of those who hire, control and govern our common schools. You can establish a normal training school in every hamlet throughout the State; but if the person who is empowered with the authority of engaging teachers for our schools is not required to possess one single requisite qualification in order to exercise the functions of the office, the end and ideal sought will never be realized. The wisdom and sagacity of a Froeble would be and often is outweighed by the most illiterate, fault-finding patron of the school, by such an official. Many of our cities afford a most excellent and striking example of the defects of such a system. Think of a man occupying the chairmanship of the committee on teachers who cannot speak the English language, and whose headquarters are generally established at some neighboring saloon. The wise and prudent suggestions of the most experienced and learned superintendent would have but little influence with such an educator (?), if he willed otherwise. If this state of affairs exists in our secondary schools, what reforms can we expect the rural pedagogs to accomplish for the betterment of the schools along the line of more scientific methods—with perhaps only ten weeks to compass results—when they continually have to deal with those who, neither by education nor natural attainments, possess a single attribute which is in touch or harmony with the advanced teachings of the hour, and who so persistently ignore the duties of the office which they occupy that the very house over which they have control is unworthy the name by which it is designated? Should those who love good schools ever succeed in securing a township system, with it must needs come some plan providing for the qualification of those who supervise and direct the management of our primary schools, if we ever realize the fruition of our expectations.

In conclusion, what of the future. Like those co-laborers of twenty years ago, are we to be overtaken and overwhelmed by some mighty wave of legislation? I trust not; I believe not. Yet, if the sentiment expressed by our last legislature upon this question can be taken as a criterion for indicating the will of the people, it demonstrates quite clearly that the progress toward the advancement of our rural schools has been of the snail order. Notwithstanding the troublesome problems which cloud the future, and the obstacles which must be removed from our path-

way, I thoroughly believe in a future which will produce better results. It may be slow, and by that plodding, patient, persevering process of accretion which builds the ant hill. It probably will be, but during the interim I trust we may say with the poet:

'Tis weary watching wave by wave,
And yet the tide heaves onward;
We climb like corals, grave by grave,
And pave a path that's onward;
We're beaten back in many a fray,
But newer strength we borrow,
And where the vanguard camps to day,
The rear shall rest to-morrow.

It seems to me we are better entrenched, more strongly fortified, surrounded by an atmosphere which contains more abundantly the spirit of progress, and the advantages of past experience. If so, we shall be able to hold our position and perhaps gain additional strength, while waiting for more substantial re-enforcements. Should it not arrive until the school boy of today becomes the legislator of the morrow, let us in the meantime endeavor to educate him so that he will not betray the cause in the hour of its extremity.

DISTRICT SCHOOL LIBRARIES—PLANS FOR SUPPLYING THEM.

COMMISSIONER J. A. O'LEARY, VAN BUREN CO.

As the most important and wide-reaching factors in the advancement of civilization, libraries stand pre-eminent, no matter whether they be for school, home, or the public in general. Myriads of books on all conceivable subjects and a mass of reading matter in other forms, have been added to the earlier stores of literature. Until within a few years, even in the most enlightened countries, the majority of the people were unacquainted with the world's literature. Books demanded high prices and were a luxury which could be found only in the great institutions of learning, and in the homes of the rich. But now, thanks to the competition and enterprise of modern publishing houses, books have been sown broadcast over the land; and he who will may possess a collection of desirable volumes.

Carlyle said, "The true university of our day is a collection of books." It is hardly possible to estimate the educative value of a carefully selected collection of books. In the school they supplement the work done by the teacher, and the formal instruction derived from the text-book; in the home they are ever ready to impart knowledge and entertainment to the old and young alike. They throw open new avenues of thought along the line of history, science, biography, etc., and silently cause their readers to know not only more of man and his estate, but to entertain higher ideals of life, its purpose, and its duties. Does any system of education do more? Kant affirms that the object of education "is to train each individual to reach the highest perfection possible for him." This does not necessarily mean the ability to do or to remember, but the highest development, the fullest unfolding of the individual powers. Many times the idea of perfection is largely forgotten; such things as the populations of thirty or forty cities large and small, abstruse arithmetical and gram-

matical puzzles are taught, and the children required to read a specified amount of matter which has no interest, no beauty, and quite often no sense. Only the best in all departments of knowledge should be placed before the child, who does not know how to choose between the good and the bad. He learns to read and to think at the same time, hence the choice of material as to subject-matter is important. Much of the matter which has been put into print and hastily recommended is not of an educating or elevating character.

It is not creditable to our efforts as educators that so large a proportion of pupils pass from us without having acquired a taste for reading good books. If our educational system confers the ability to read without forming a desire for the right kind of reading, there is surely need of reformation. A taste for good reading will last for life, will be available at any time, and will grow by what its feeds on; it will so occupy the time of the young that temptation will lose much of its power by being deprived of many of its opportunities.

It is true that many of our schools are doing work in literature as a part of the regular school work; but the amount done, even in some of our best graded schools, is small. What cultivated parents are at all satisfied with it? If we teach the children how to read a good book and then direct them to some good book, we shall do well. To inspire a love for good books in a child who has no one at home to be an inspiration to him is a grand thing to do.

When Franklin describes the library as "a great thing in itself," he is emphasizing the cardinal doctrine of his educational system, the use of the right book. His scheme of education includes methodical instruction in a few books which embody the best thoughts of the best minds. It is impossible to estimate the influence of Franklin's idea on America. If we measure it by the influence of the libraries on our country, it might safely be affirmed that Americans are more indebted to Franklin for their education than to any other man. Let it not be forgotten that the first principle of Franklin's plan of education grew up in his mind from his own experience in self-education; in the reading of books when a child; in learning to write English correctly; and in the necessary equipments for the debates of the Junto—a library.

Perhaps it will be well to review briefly the history of the district school library, both in our own and other states. In 1835 New York passed a law establishing school district libraries throughout the State. On condition that the districts should duplicate the sum, fifty-five thousand dollars were taken from the general school funds and devoted to libraries. Within a few years the number of books had reached one and one-half millions. As these libraries were intended to contribute to improvement outside of the school, their usefulness soon came to an end. In 1837 Michigan established township libraries and, a few years later, the district libraries, which were simply subdivisions of the former. In 1852, Indiana passed a law ordering a tax of one-fourth of a mill on a dollar and twenty-five cents on each poll, to be levied for two years, the proceeds to be applied to the purchase of books for district libraries. Other states passed similar laws, and hundreds of thousands of volumes were distributed in a few years. Boone in his "History of Education in the United States," says that these libraries did not wholly meet the expectations of their friends, but paved the way for the more recent town

libraries that show promise of being a much needed and wholesome supplement to the rural schools.

In my opinion the township library is of benefit to the rural school only in a general way. The library to be of practical use to the schools should contain books suitable for all grades of pupils—the township libraries do not furnish these. Inconvenience of location of library prevents the general use of books. Books for libraries are not always wisely selected. Books of fiction, not always standard, and books of adventure often need rebinding, while volumes of biography, history, and literature (there are often a few of these) remain intact. What does not improve and refine the mind is not education. Culture, Matthew Arnold defines as "acquainting ourselves with the best that has been known and said in the world." Nine-tenths of all information is acquired by reading, hence the necessity of a wise choice of reading matter.

There are parents, and I do not wish to presume their number few (if it be, our schools must have done lamentable work in the past and are responsible for miserable failure), who know how to direct the reading for their children and who desire them to acquire that taste for good books that is rarely acquired, if not in childhood or youth. It is a complaint on the part of many parents that their children have no love for books. The difficulty, for the most part, lies with the parent in not supplying the children with the proper reading material. In Michigan homes alone there are thousands of children who have access to no better reading than that obtained in the yearly almanac or the columns of the sensational story paper. This is a condition. The difficulty is that, lacking opportunity for and direction and incentive in reading good books, young people miss them or read so many worthless books that the effect is negative. The district school working library and the pupils' reading circle are doing much toward lessening these evils.

In his annual report for 1893 Supt. Pattengill compares the chapter on rural school libraries to a certain chapter in a book entitled "Snakes in Ireland." This chapter begins and ends with "There are no snakes in Ireland." It now reads "There are many snakes in Ireland." Thanks are due to the loyal efforts of the Superintendent of Public Instruction, commissioners, and teachers of Michigan.

Some recent legislation has been very favorable to the formation of rural school libraries. The laws authorizing that all library moneys apportioned by the county treasurers shall be applied to the support of township and district libraries and to no other purpose, and that any district may establish one and demand its share of the township library books, also its proportion of all library funds, have done and are doing much to hasten the movement. There is certainly no reason why a small library should not be started in each district in the State. The partial failure of the old plan has caused, and justly so, much doubt among patrons as to the wisdom of trying to establish the school library once more; and a great deal of explanation is needed to make them understand that the present movement is, in one sense of the word, radically different from the old. When patrons have been informed that the present library is not to be made up of works of fiction, but of the best in literature, science, biography, travels, etc.; that it is not intended so much for general reading and circulation through the neighborhood, as it is to assist in every-day school work; that it is so graded that all in school shall reap

a benefit, it is not so difficult to have them see the good of such a help and to secure their hearty coöperation in the matter.

I sent out a circular to directors recommending that at school meetings a small sum of money should be voted for such purpose. In some instances this advice was acted upon and the nucleus thus formed; but the close times of the past year or so, especially noticeable among the farming districts, made them doubly conservative concerning the voting of money for other than the necessities of keeping the school going a certain number of months in the year. The plan of raising money for such purpose by means of school entertainments, socials, etc., is a commendable one and has been tried with success. Where it has been done (and mostly through the efforts of a progressive teacher) much interest has been awakened in the subject of good reading, and the children reap the benefit. Another plan advocated by some is to raise a few dollars by subscription; still another is to secure the loan or gift of suitable books.

In a district where there is a good healthy school sentiment, where the people are fully awake to the push of educational progress, where the one who reigns has not reached a state of complete fossilization, it is not difficult to lay the foundation for that much needed and ever useful adjunct to a modern rural school—a library. In many counties of the State the movement has been pushed by wide-awake commissioners, and the results are most gratifying.

It is not within the province of this paper to discuss just what books should be selected for each grade, nor what number should be devoted to supplementary work and what number are to be used for general reference.

My fellow commissioners, Supt. Pattengill has suggested that the following epitaph would read well: "Through his efforts a good working school library was put into every district in the county." Are you in line?

The only condition of meeting the requirements of a progressive agriculture, is the solid foundation of the education in the elements, which can well be given in a good country district school, properly housed, with a competent teacher, a moderate library, and a session of nine months in the year. There are the foundations of a fair school training laid, a taste for reading and good habits of study formed, with a valuable training in morals and good manners; and, above all, a hunger and thirst after knowledge and an elevated idea of American citizenship will be nurtured which shall lead on like a guiding star, high in the heavens of youthful aspiration, to every possible achievement.

DISCUSSION.

Opened by COMMR. FLORA BEADLE of Barry Co.:—

It is with some degree of hesitancy that I stand before this thinking body of educators of the State of Michigan. I hesitate for several reasons: 1st, perhaps, because I am young in the work; 2nd, because I would prefer to listen; 3rd, the program of the Association did not reach me until I was ready to start for Lansing, and this was the first intimation I had received that I was to have a part in this meeting. So, under the circumstances, in discussing a paper that has been so ably presented, and without someone to open the discussion, I fear I shall not be able to throw much light upon the subject.

I wish to emphasize one fact, and emphasize it strongly. I am intensely interested and intensely in earnest in reference to anything and everything that can in any way tend to the general advancement of our boys and girls in school; and I regard the establishment of the district library as one of the main factors, not only in the advance-

ment of the school, but in the advancement of the entire community. There is an old saying, "As is the teacher, so is the school." True as this may be, there is another which is equally true;—as is the *community*, so is the school. In my short experience as commissioner I have learned to my complete satisfaction that the school is a safe index of the spirit of advancement of the people. I feel today like saying, "All hail to the legislature of '95 which provided that certain moneys coming into the hands of the treasurers might be expended by them for libraries." I feel that these moneys could not be expended for a better purpose. One of the most commendable features of educational movements of our day is this effort to cultivate in the young a taste for good reading.

John Ruskin once said, "If I could have a son or daughter possessed of but one accomplishment in life, it should be that of good reading;" and Ralph Waldo Emerson told us, "A good reader summons the mighty dead from their graves and makes them speak to us," while Henry W. Longfellow has said, "He who reads a poem grandly is of equal honor with him who writes a grand poem."

These, in my opinion, are powerful arguments, coming from the pens of these men, for the placing of good reading matter in the hands of our boys and girls; and about the only way we can reach the masses is through the district libraries. The first step in this direction is to make the parents realize that they should know what kind of books their boys and girls are reading. Before you can make the parent realize that this is necessary, it is important that he have created in him a desire for good books; and about the only way that we can influence the reading of the parent is through the district library. There are many parents who can see no beauty and no fitness in the plans of the educators of today if unlike the plans of the instructors of their own period. These, I think, all will admit, are realities and painful realities; "but perhaps after all, dear Brutus, the fault is not so much with our stars as with ourselves."

One of the greatest blessings that can possibly come to a man, woman, or child, is the formation of the habit of reading good books. Nothing can make for character or culture like this and, I might add, nothing can be more harmful to the plastic mind of a child than the reading of bad books. I ask the question, have we, as teachers and commissioners in the counties of the State, taken the first step toward making parents realize that they should supply their children with good reading matter? Have we tried to make the parents realize that they, as well as the children, should like to read of a beautiful life? How many beautiful lives there are whose history will be handed down as a beacon light to succeeding generations. I feel that a great responsibility rests upon the teachers, commissioners, and educators of each county, in regard to the establishment of district libraries. We should educate the people to possess some zeal in this mattter, that they may lead their children to approach with love the great, kind souls who speak to them so tenderly and strongly out of the pages of good books. I feel that the reading of good literature is a part of education.

Now in regard to plans for providing these district libraries, I cut from the December *Inland Educator* the following:

"Massachusetts, always in the lead in all matters pertaining to education, has taken another great step by the appointment of a commission composed of five men whose duty it is to further library interests of the state in various substantial ways, even to the extent of appropriating money. So active and beneficial has been the work of this body that but few towns in the entire state are without libraries. Other states have followed the example of Massachusetts by the establishment of similar commissions. New York has now a library system second to none, the crowning feature of which is a school for the special training of librarians."

This is what some of our sister states are doing, and perhaps this item may become a suggestive one to us. Perhaps a commission composed of the right kind of material, persons with plenty of energy and back bone, might be of help to us in this State. In my own county, in several instances at the district meetings small sums of money were voted for the support of the library, and it seems to me (perhaps the idea is Utopian) that some influence might be brought to bear upon the tax-payers so that they could be induced to vote annually a sum of money for the increase and support of libraries. Perhaps I have occupied the time allotted me, but there is another idea which I wish to suggest. Another way to reach the tax-payers of any community, and to open their hearts and their pocket books on any question pertaining to the school, is through the mothers of the community. I think there is no more vital force than the carrying out of the mothers' meetings; and let me tell you that, setting aside a few prominent educators, it is the mothers' meetings that have brought about this sentiment in regard to nature and child study. I feel that the mother stands side by side with the father and the brother. So let me repeat, I realize there is a certain degree of responsibility resting upon us as educators and commissioners in regard to this matter. I feel that I, for

one, am inspired to go forth from our State Association with new zeal to try to teach the people that good books and good libraries well selected, are safeguards with which to surround the boys and girls of our schools.

COMMR. MCCLURE of Oceana Co.:—

I wish to add a word on district libraries. Hard times need not necessarily prevent libraries being introduced in every district of the State, and the best way is for commissioners and teachers to select the books. You will often notice, in looking through these libraries, that there is a dearth of books for the younger pupils. This should not be. If we wish our boys and girls to become good men and women, we must see to it that they read good books. If we wish the coming generation to be good law makers, we must give them good literature in the impressionable years of their life, books which shall develop their ideals of right and justice. In my own experience I have found that the best way to get these books is through socials. Suppose you only raise five dollars at a social, you have formed a nucleus around which you can build a library.

COMMR. DEMORAY of Montcalm Co.:—

I heartily advocate the plan just mentioned,—am booked for several of these meetings myself—two a week right on through January.

COMMR. SMITH of Bay Co.:—

Would you be kind enough to give us an outline of what you do at these socials?

COMMR. DEMORAY:

I do not know but Brother McClure is better able to explain this than I am. In Montcalm county we went at it in a systematic way, arranged our program, and did the proper advertising. We generally hold the gatherings in the schoolhouse; or if there happens to be a private house large enough to accommodate us, we go there. The people always bring along the eatables, and we charge about twenty or twenty-five cents a box. We raise from five to ten dollars at these meetings. Our program consists of one or two papers by the citizens, and they generally call upon the commissioner to say a few words; then we sing some songs and go home. After the meeting I sit down with the teacher and make out a list of books.

COMMR. SMITH:

Do you leave it to the teacher to get up the program?

COMMR. DEMORAY:

I usually ask them to invite one or two members of the board to give a little talk, and these are ofttimes very interesting. Not long ago at one of these meetings a director read a paper on "My boyhood days." He compared the district school of today with the district school of years ago.

COMMR. SMITH:

In the light of the address to which we have just listened, I would like to ask if the gentleman who wrote the paper thought the schools of today were better or worse.

COMMR. DEMORAY:

He thought they were better.

COMMR. MCCLURE:

I do not wish to be understood as claiming that the method which I mentioned is the *only* one. I would simply state that by this method we have introduced district libraries, in whole or in part, in every district in Oceana county.

COMMR. WAGNER of Eaton Co.:—

The great advantage in establishing libraries in this way is that the pupils take a hand in it, the parents take a hand in it, and thus they continue to keep the library growing.

COMMR. CLAPP of Kalamazoo Co.:—

I do not agree with you on the plan of raising money by socials. There are three important questions in regard to libraries: how to raise the money, what books are bought, and how they are cared for. A library that is bought by money raised by socials, is too liable not to be properly cared for; they are left in too lax a manner. Then, too, in some instances the quality of the books bought is not up to the standard. I remember that in our own county twelve or fifteen years ago a man was put on a committee to buy library books, and when he reached Kalamazoo he wanted to expend the entire five dollars for Beadle's Dime Novels. He said his boy and girl liked those books pretty well, and he would probably have purchased them had not the dealer discouraged him. Now, I have been present at some gatherings where they have proposed to raise some money for libraries, and I made a proposition to the men and women present

that, if they would buy the books, we would raise money by entertainments to buy a book case and things necessary to take care of the library. We never failed to get an appropriation from the district to buy the books, and the books have been cared for and put in proper hands. I think the mothers' meetings which Miss Beadle mentioned are a good thing, but we want to get at the *fathers*. If the mothers carry the good sense, the fathers carry the pocket books; and if we can get at these, we are all right.

COMMR. WEEKS of Ingham county:

I think we are lucky in this county for one thing,—we have no township libraries to quarrel over. I regret to say, however, that we have *not* a library in every district of the county; and I am fearful that, unless some one stronger than the present commissioner has charge of affairs, there will be schools in Ingham county without libraries when I am older than I am today, to say the least. It is hard work to know just the best way of working these in. As fast as I can get to a district before the annual meeting and talk with the members, I have had no trouble whatever to get them to appropriate money at that school meeting; but if it is ten days or two weeks before, they do not do it. I make it a point to attend one school meeting one year and another the next, and you can see that I will have to live a good many years to get clear around. I have thought of this plan and recommend it to my teachers:—Let the teacher who is to teach in a certain district attend the school meeting held in that district and bring the matter of a library before the meeting. I find no trouble whatever if the matter is brought before them when they raise the money; but if we wait until later, they say they have no money, and usually I think they are glad of it.

COMMR. MILLS of Midland Co.:—

Can we expect a teacher who does not know where she is to teach the coming year, to be interested enough in schools in general to go before the board and present this matter?

COMMR. FRENCH of Hillsdale Co.:—

I have confidence in my teachers, and they have promised faithfully to attend the annual meeting in the districts where they find themselves and to use their interest there.

LICENSING OF TEACHERS.

COMMISSIONER J. W. SMITH, BAY COUNTY.

Confessedly the most important duty which devolves upon the county board of school examiners, and more especially upon the county commissioner, is that of licensing the teachers. The old maxim that "As is the teacher, so is the school," while to a certain extent fallacious, nevertheless is true in this respect, that no one can teach what he does not know. It is the business of the commissioner, assisted by the rest of the board, to find out, at the stated examination, just what the candidates know, when measured by the test which the State Superintendent has seen fit to make.

You will notice that I have placed the onus of the responsibility in the licensing of the teachers upon the commissioner rather than upon the board as a whole, where it legally belongs. This was not done without design, for the two other members of the board ought, it seems to me, to use with great reluctance their numerical majority to override the opinion of the commissioner. Of course circumstances might arise where such action would not only be justifiable, but where a failure thus to interfere would be such a dereliction of duty as to render them liable to censure. Still, as a rule, their duties are those of assistants rather than of principals, and they should leave the final decision, for the most part, in the hands of the commissioner, who derives his authority from the whole people and not from an appointing board.

The force of this suggestion will become more apparent when we recall that the statute does not make the licensing of the teachers depend wholly

upon their educational acquirements. It provides also that the candidate must have been present at a public examination, must have attained the age of seventeen years, must have a good moral character, must be a citizen of the United States, if over the age of 21, and must also be able to instruct and govern a school. Upon the most of these subjects the commissioner is the only member of the board who can give information; and when the board becomes convinced that there is a fatal lack in any of these particulars, the candidate should be rejected without ceremony, no matter how well the examination questions may have been answered.

I cannot do better in this connection than to quote the words of our supreme court. "The matter of selecting or certifying proper and competent teachers in our schools is one of much importance; and, vested as it is, in a board of school examiners who, by personal examination, are qualified to survey and consider all the circumstances which should influence one in forming a judgment, we should hesitate to interfere, and will only do so in a case free from doubt and of a gross perversion of duty." The power given to the commissioner and the board of examiners by law, as interpreted by our supreme court, is a far greater one than that ordinarily possessed by any city superintendent of schools. A county commissioner can do something besides recommend. He can interpose an insurmountable barrier in the way of the incompetent or the unfit person and make it impossible for such a one to become a teacher. And if, through inadvertence, the board of examiners should license an unworthy person, a subsequent section gives ample power to revoke the certificate. If a county commissioner of two years standing is surrounded by a class of inefficient teachers, he himself is largely to blame for it.

Confessedly among the most important qualifications that every teacher must have, is a sufficient knowledge of the subjects to be taught. This much at least and to start with. Besides this a teacher should be continually growing in knowledge. The second examination should show better results than the first; the third, better than the second, and so on. The law providing that not more than three certificates of the third grade should be given to one person is a good one, and, so far as my observation extends, is receiving the hearty support of school officers and the public generally. A school officer remarked the other day that, if a teacher had taught for three years on a third grade certificate and then couldn't get a second grade, she ought to stop. There is no doubt about the correctness of this position, and the State department is to be congratulated upon securing the passage of so good a law.

The teacher's examination, or rather that particular portion of it wherein is tested the educational qualifications of the candidate, may conveniently be divided into three portions,—the preparation of the questions, the formal answering of them, and the estimating of value of the answers. Fortunately, the preparation of the questions is taken wholly out of the hands of the examiners, who receive them in sealed packages which are opened in the presence of the class. Just what is the method of preparing these questions is to me unknown. Of course it is understood that some one or more connected with the State Department perform the labor, the popular impression being that the Superintendent of Public Instruction does the whole of it. From certain peculiarities in the questions, it would doubtless be safe to conclude that our present Superintendent has in the past had something to do with their preparation; but to charge him with manufacturing the whole of them is to give

him credit for a degree of industry which, I presume, he would be the first to disclaim.

This preparation of the questions is, as all will concede, a very important part of the examination. Moreover, all of us who have had any experience in making out sets of examination questions, will readily admit that the task is by no means an easy one. The fund of knowledge which the questioner himself has is the fund which he must necessarily draw from; and, if that knowledge be great in its extent and deep in its content, the questions will naturally vary between those that are very comprehensive and those which are exceedingly technical, whereas both extremes ought to be avoided. In general we all must admit that our State questioner has navigated his boat most successfully and has succeeded in steering between the rocks on the one side and the whirlpools on the other with great dexterity. Still, he has not always succeeded, for it seems to me that the young Miss of eighteen, fresh from her high school studies could hardly be expected to know much about the peculiar educational doctrine expounded by the Committee of Ten. By the way, this "Committee of Ten" calls to mind a certain other "committee of ten," of whom Macaulay in his Virginia says that "Appius Claudius was the worst." As an example of the somewhat too technical, we might instance a question concerning the identity of "King Strang." The personality of the aforesaid "King" is hardly enough marked in Michigan history to make any one blush to confess that he has never heard of him.

The principal uses of the question are two—first, to test the extent and accuracy of knowledge already gained; and second, to suggest new subjects for investigation. Now both of these are useful in their proper place and possibly it might be well to mix them, if you don't care much about the immediate results. When it was my lot to have charge of a large system of schools, I used to prepare sets of questions having the first end wholly in view. Then, occasionally, when I wished to give the school a good shaking up, I would send out sets which were pretty liberally sprinkled with the second class of questions. Whenever I adopted the latter plan, I do not now remember that I ever failed to "shake the school up," and sometimes the shaking did not cease until it was felt quite perceptibly in the superintendent's office. I never doubted, however, that my experiments along the latter line were productive of good; but I was always careful to ward off any evil effects that might come by instructing my teachers that they need not look with too critical an eye upon the answers which were given by the pupils to the suggestive questions.

In the same way, judging from what I have been able to observe of the educational progress of the teachers of Michigan in general, and of Bay county in particular, I am of the opinion that the suggestive questions with which so many of our State examinations have been sprinkled, have also been productive of great good. Doubtless they have been the jaw bone with which some Samson of a commissioner has slain his thousands; but perhaps these "thousands" ought to have been slain anyhow, and so the harm that was done to the individual was more than off set by the good that was gained by the schools. At all events there certainly never has been a time in Michigan when the teachers of her rural schools have made such desperate efforts to become "posted" in current events as has been the case during the past three years; and this is a result greatly to be desired. The musty records of the past are all very well in

DISCUSSION.

Opened by COMMR. WEEKS of Ingham Co.:—

From what I have seen in the commissioners' column in the Moderator I thought perhaps the question might come up, whether or not the examination should be yearly with teachers. We have heard it said so many times that the doctors, lawyers, and people of many other professions were examined once for all, and I feel like saying God speed the day when that can be true of the teacher. But if we look at the question a little farther, we find that the conditions are different with the teachers. In all other cases, I think, the supply equals the demand. We have ministers enough in Eaton county to save every soul, if they are willing to be saved. I think we have physicians enough in this county to save everybody, if everybody could be saved. Then, in regard to the law; though in this county the judge says he has been working very hard for the last few years to "clean up the county," I know we have lawyers enough in Eaton county to bring up ten suits while he is clearing up one. Then there is still another side to this. These professional men that come up to the examination are better prepared than we can expect our teachers to be. They have to take at least a certain amount of professional work, while the teacher comes to us from the kitchen, from the high school, from the grammar department and almost any other place, and asks to be certified. If we should get caught in a pinch and did not know what to do to fill out the term for that time, but *had* to allow one of these persons to teach, I for one should feel a little bit as though I would not like to have that certificate last forever. When I said God speed the day when they might come once for all, I meant when they might come to an examination with special preparation for the work.

Failures in school are largely due to inefficiency of the teacher,—I should say that 90 per cent fail because of inefficiency in some or all of the four following particulars:—

1. Lack of knowledge of subject to be taught. (No teacher can teach very much more than she knows herself.)
2. Lack of power to impart knowledge to others.
3. Lack of power to inspire.
4. Lack of tact to manage. There is a great deal said about tact. It has been harped about for years; but I have made up my mind that very few failures are due to lack of tact. If you have knowledge, power to impart it, and power to inspire, tact will follow along very nicely.

Now in regard to examinations. Let it be understood, whether we dodge from it or not,—let it be understood generally that we are to hold every one strictly to the examinations, whether their work be good, bad, or indifferent. I hope you will excuse me for speaking of the work we are doing in our county, but we hold the standard to 80 per cent for third grade certificates. I know you will come back at me with the assertion that there are not enough who can reach a general average standing of 80 per cent to fill the schools of Ingham county; but by allowing credits for professional work, for institute work, for reading circle work and work of that kind, stating definitely what we will allow, we can bring up the standing to the desired point. The more I work in this line, the more I believe that is the true way to get the teachers inspired in the work of imparting information to others.

SCHOOL SUPERVISION.

SUPT. E. G. MACHAN, LA GRANGE COUNTY, IND.

A few years ago at a superintendents' meeting in the city of Washington, D. C., Supt. Draper presented a paper in which he outlined what he considered an *ideal* school system; and, in closing, he remarked that it would probably be some time yet before this would be realized in any of the States of the union. Our fellow worker, Mr. Jones, superintendent of the Indianapolis schools at that time, now of Cleveland, informed Mr. Draper that this system which he had outlined, with one exception had been in operation in the State of Indiana for twenty years or more. You probably have seen the same system outlined in the Indiana reports of 1880.

"The efficiency of any great system of coöperative labor is measured by the completeness of its organization." "That army will be the most successful on land whose troops are the best organized, and that navy will be most successful at sea that is subjected to the most rigid inspection." This is true of all great corporations formed for important ends, even of government itself. A State is an institution which has for its purpose the realization of freedom in all its citizens. Rational freedom cannot be realized without general education. No system of education is complete until every child is brought under its influence and its wants are fully understood and met. It is, therefore, the duty of the State to provide by law for a thorough and efficient system of schools "which shall be free and open to all."

A limitation of intelligence is a limitation of citizenship, and ignorance on the part of some is an abridgment of the liberty of others. Then it is the duty of the State to adopt the most complete and efficient system of public schools possible.

The systems that now exist in most of the States have for their unit the district or the township. The district system may be the more democratic, but the township admits of closer supervision. The purpose of supervision is to put life into a system. The great want of our common schools is supervision. It is this that has vitalized the schools of our larger towns and cities, and has raised them to their high degree of efficiency. City schools have continually grown in popular favor, while country schools, not under expert supervision, have retrograded and in many cases have been regarded, in a great measure, failures. It is a stubborn fact that more than three-fourths of the children of this country will receive their education in the country and village schools. Thus the country school problem becomes the paramount educational question of the day. If the great want of our schools is closer supervision, then that system which admits of the most thorough and effective inspection and direction of work in the schools of the rural districts is most to be desired.

In shaping the machinery of school administration the existing political divisions and subdivisions of the State should be used, and the most useful of these is the township. De Toqueville says that, while men make States and counties, it is God who makes the township; meaning that, while the formation of the larger divisions depends on the policy, activity, and varying fortunes of the governing power, the township is the necessary result of the providential bringing together of men in all the ties of neighborhood and community of interests. He sees in the township a characteristic institution of democracy in America, one which has profoundly influenced the development of the republic. Fortunate then the State that has for the territorial unit of its school system this almost natural political division, the outgrowth of the conditions of the people's life. By no other arrangement can the principle of local control be so well preserved and vitalized, without the disadvantages attendant upon minute subdivisions and school district politics.

That supervision may be effective, the State must have a skillful schoolmaster general, or superintendent, to take charge of its educational affairs. That his services may be of the greatest value to all, the system should be simple and direct. There should be as few steps as possible between the highest and lowest authority. In the township unit system, as we have

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it in Indiana, the territorial divisions are the State, county, and township, town or city, and the school district. And the officers are the State Superintendent, county superintendent, trustee, and director. The State Superintendent has associated with him an advisory board known as the State Board of Education. This board is composed of the Governor, State Superintendent, the presidents of the State University, Purdue University, and the State Normal School, and the superintendents of schools of the three largest cities of the State. With the possible exception of the Governor, these may all be said to be experts. A noticeable feature of the Indiana system is that very little specific legislation is attempted, but certain offices are instituted, general prohibition indicated, and the details of the work left wholly to their judgment. By this means the supervision of the schools and the direction of educational thought is left largely to educational men. The State Superintendent has general supervision of the schools, supervises the management of the school funds and revenues; receives reports from subordinate school officials; reports to the governor and the legislature; hears appeals; construes the school law; visits county institutes; calls school officials together when necessary, and has partial supervisory control over institutions for the professional education of teachers.

The county superintendent, who holds an intermediate position between the State Superintendent and the township trustee, has general supervision of the schools of the county, except those of cities and incorporated towns that employ a superintendent. He visits the schools; examines and licenses teachers; has power to revoke licenses for cause; conducts county and township institutes; carries out the instructions of the State Superintendent and the State Board of Education; is the executive officer of the county Board of Education; receives reports from trustees and teachers; hears appeals from decisions of trustees in certain local affairs; orders the text books for the county, and collects the proceeds of the sales of the same and remits to the contractor.

There is but one trustee to each township and three to each incorporated town or city. The township trustee takes charge of the educational affairs of his township; employs teachers; enumerates the school population of the township; levies all local taxes and builds schoolhouses; furnishes apparatus, furniture, and all educational appliances necessary for the thorough organization and efficient management of the schools; and reports annually all receipts and expenditures, and indebtedness incurred.

The county Board of Education meets semi-annually with the county superintendent, and may be called together by him at any time. They consider the general wants and needs of the schools and school property of which they have control, and all matters relating to the purchase of school supplies. The board prescribes a course of study and rules and regulations for its successful operation, and for the successful management of the schools.

Under the township system, the State Superintendent, who is the head of the system, can readily manage and control every detail in the management of the schools of the state. In Indiana he can reach every school corporation in the state directly by corresponding with one thousand three hundred persons, and he can reach them all indirectly by writing to ninety-two alone, while to reach every school corporation under the district system would require correspondence with not less than nine thousand.

It affords greater uniformity of educational advantages, inasmuch as the schools of a township, and generally of the county, are of equal length of term. Teachers can be placed where they are best adapted to existing conditions, as one trustee employs and places all in his township. The poverty-stricken regions fare the same as their more favored and opulent neighbors, as the funds of the township all enter one common treasury—that of the township. Petty jealousies and contentions over the employment of teachers so common in the district system, are comparatively unknown under that of the township, at least there is no necessity for their occurrence. County supervision is greatly simplified. Through the trustees the county superintendent has direct communication with each school corporation. With the assistance of the county Board of Education he provides a course of study for the schools, determines length of term, as also the proper lighting, heating, and ventilation of buildings under construction. In this alone the later constructed schoolhouses in the country districts of Indiana speak volumes for the system. Questions regarding the best interests of the schools are discussed, and often the necessary supplies for the schools, apparatus, etc., are decided upon.

The township institute is a means of great help to the county superintendent. The law requires that one Saturday in each month shall be devoted to a teachers' meeting, or model school, to be held in each township of the State during the time the schools are in progress, and two may be held if the trustees so directs. Attendance upon these meetings is compulsory. This enables the county superintendent to meet all the teachers of a township each week, besides those he meets in his official visits. In this way he may visit in one township during the week and attend an institute in another, thus coming in contact with the teachers of two townships in a week's time. During his official visits he ascertains and marks the points in which his teachers are deficient in scholarship or in professional ability. Upon these he is prudently silent in the presence of the school, but deems it best not to mention it to the teacher at this time. In such cases he can make these deficiencies a special subject of investigation at the next institute, without personal allusion to any one. Then all errors may be pointed out with great freedom, free from all suspicion of personal feeling, and free from personal embarrassment. These meetings afford opportunity for the exchange of thoughts on school room work, school management, and perplexing questions difficult of satisfactory solution. They are a boon to the beginner, inasmuch as he can question his associates and often gain information without which his work would have proved a failure. The patrons often attend these meetings, thus increasing their interest in the schools, and cultivating an acquaintance with the teacher and his work.

The institute is also a means of general and professional culture. The Teachers' Reading Circle is conducted in connection with institutes. The work of the circle is confined to two lines, that of general culture and of professional work. The work in each is carefully outlined to cover the school term, and is assigned at each institute for careful and thorough study. At the next institute it is taken up and considered by the persons to whom it was assigned and discussed in general by the members of the institute. This brings all the teachers of the State, outside of the cities and incorporated towns, directly into the work, and requires all to give the subject careful study, thus doing away with the annoyance of irregularly attended Reading Circle meetings. One-half of the time in

these institutes is generally devoted to this work; and, to offer greater incentives closely to study the course, the State Board of Education has incorporated the work in the questions for examinations of applicants for license to teach. The general culture line at this time is included in questions on Shakespeare's Henry VIII, and the professional line on McMurry's general method. Through these means the teachers of the rural districts have been led to a fuller and more comprehensive knowledge of their work and have been filled, in many cases, with the professional spirit, and made to do almost professional work.

Another advantage of supervision exists in the opportunity it offers to grade teachers on their success, or professional ability. An examiner who licenses teachers on their scholarship alone well knows this is not sufficient. While every true teacher is a scholar, every scholar is by no means a teacher. In licensing teachers more than a knowledge of scholarship is necessary. To obtain this requires careful school visitation. The superintendent while visiting the school critically notes and grades the teacher on his scholarship, his professional training, natural aptitude, and experience. He notes the classification of the pupils as based on the course of study, thoroughness of instruction, skill in conducting the recitation, industry and interest of the school, the daily program, order, sanitary conditions and neatness of room and surroundings, keeping records, making reports, and care of school property. This, with the atendance and work in the township and county institutes, the Reading Circle work, and the school journals taken and read, forms a basis for grading teachers on their success and professional interest, which counts one-half in making up the general average of applicants for license to teach in Indiana schools. Through supervision the teachers may be required to make full and complete records of attendance, deportment, and scholarship of pupils, noting the degree of advancement of each in his studies and leaving the same for his successor, that as little friction as possible may occur in the change of teachers. By this means valuable time is saved where changes occur; however, changes should be discouraged as they greatly hinder professional work in the schools.

Since three-fourths of the youth of the land are in the country schools, is not this, alone, sufficient cause for close supervision? Is there a city or town of considerable size in Michigan that is not under careful supervision? Why then should the country be less favored?

In conclusion, allow me to quote from ex-State Superintendent LaFollett's report of 1888 on the results of county supervision in Indiana:—

"The unification of the school forces of the county, and the systematizing of the work of the country school has had a tendency to produce equalization of the school term in the several townships; longer terms; a larger enrollment; an increased per cent of attendance; and an increase in the number studying arithmetic, grammar, geography, history, and physiology, amounting in some places from two-fold to five-fold the number formerly pursuing such studies. The time spent in learning to read, write, and spell has been shortened by means of better grading and methods of teaching, while the number pursuing these branches has increased also. The pupils partake of the spirit and are more determined to avail themselves of their advantages. Each year less friction is observed in school affairs. Better methods of teaching, and better ideas upon school management, are brought into prominence by the superintendents and experienced teachers at visits and in institutes. The

standard of teaching has been raised, at least the scholarhsip of applicants has been more closely inspected. Finally, it is confidently believed that better men and women are being trained and more properly fitted for the duties of life and the service of the State."

DISCUSSION.

At conclusion of this paper President Ransom said, "I presume there is no doubt but that many commissioners present would like to ask Supt. Machan some questions. If they so desire, they have an opportunity at this time.

SUPT. MACHAN:
I hope everyone will feel free to do so. I admit that this is a rather delicate undertaking for me, as I was not really aware what was wanted of me. From a talk which I had with your State Superintendent last spring, I learned that the township unit question was being agitated in your State, so decided to touch upon that line.

COMMR. WEEKS:
I would like to ask a question regarding township institutes. Are they held once a month in each township?

SUPT. MACHAN:
We often combine two townships, and sometimes as many as four, holding the meetings on Saturday.

COMMR. MCCLURE:
Can you tell us how many patrons attend these meetings?

SUPT. MACHAN:
I should say that, on an average, about half a dozen attend each meeting. Sometimes we have three or four times as many patrons as teachers.

COMMR. MCCLURE:
How about the apparatus you have in your schoolhouses?

SUPT. MACHAN:
That depends upon the trustees. In all the schools we have a dictionary; in many we have encyclopedias, outline maps, globes, and all the necessary records, registers, etc. We have usually in all the schools of the county an elementary chart for numbers, and one for reading.

COMMR. MCCLURE:
How about the expense of your system as compared with ours?

SUPT. MACHAN:
I do not know anything about the expense of your system. All the salaried officers we have in our system are the county superintendent (who generally does not draw quite as much as the county commissioner in this State) and the trustee. The trustee will average about $150. The school work of the latter is only one phase of the work. The trustee has to look after the poor, the roads, the ditches, and most everything in this line.

E. A. HOLDEN:
I would like to ask if the men who have all these duties to perform are usually specialists in school work or are they specialists in road making or in what line?

SUPT. MACHAN:
That depends upon the township. If the township is a strong township educationally, their interests are for the schools and the trustee is selected from that standpoint. If the township is one in which roads are the fad, the trustee is elected from that standpoint,—and sometimes they are elected simply from a political fight. I will say this, however, I have noticed that the more responsiblity is placed upon these men, the more careful the voters are in making the selection.

COMMR. DEMORAY:
How many months of school is held during the year?

SUPT. MACHAN:
Seven months. The law makes it compulsory that all the schools be run the same length of time.

COMMR. DEMORAY:
How are the wages?

SUPT. MACHAN:
In our county we do not pay as much as we should. Wages run from $30 to about $35 outside of the township central schools. In these they often pay as high as $50 per month.

COMMR. DEMORAY:
Is the attendance at township institutes compulsory?

SUPT. MACHAN:
The law makes it compulsory for the teacher to attend these meetings. He is paid for his attendance, and, if he fails to attend, loses this pay, being also fined the wages for one day.

COMMR. DEMORAY:
In building schoolhouses, who oversees the work?

SUPT. MACHAN:
The township trustee. Another hardship in the districts of your State is, that many of the districts would build a schoolhouse, if able to do so. In our state, the township builds the schoolhouses and every tax-payer assists.

COMMR. PALMERLEE, of Lapeer Co.:—
I am glad to know something of the workings of the township unit system in Indiana, and that it is not one of the black spots on the face of the earth. Every time this matter is brought up in the legislature, the opponents of the system point with scorn to Indiana. We wanted to know of the work of a representative county, and are all glad to have heard Mr. Machan's explanation of it. I regard it as the duty of every one to use his influence to counteract the untruthful statements of its opponents.

For some time Supt. Machan continued to respond good naturedly to the numerous queries of various commissioners, which elicited the following information:—That a township graded school is provided for in the statute, and is a school of two or more teachers, having a high school course, tuition to which is free to every person in the township; that it had been necessary to do away with one or two schools in LaGrange county, in which case the pupils had been transported to a central school in covered spring wagons, the cost of transportation being between $80 and $90 for seven months; that upon taking up the high school course, the pupils must bear their own expense; as to repairing or building of schoolhouses, the trustee has full power in regard to all things, except in changing location, which requires the consent of a majority of the tax-payers; that said trustee is elected by the people for four years and cannot be re-elected; that the law requires that every child of school age enumerated in the census must be sent to some school, and in case of children who are too far from school to walk, the trustee must provide transportation and pay their tuition; that under this system, as under any other, there will be some poor schools, but there is a greater uniformity of excellence than under any other system.

COMMR. DEMORAY referred to some difficulty he had encountered in the smaller graded schools, arising from haphazard work done above the eighth grade, and offered a resolution that the chair appoint a committee of three or five to draft a ninth and tenth grade course. The motion was carried.

It was then voted to proceed with the election of officers, at which juncture Supt. Pattengill referred to the fact that he had partaken of the hospitality of nearly every one present and would like to reciprocate by taking them in a body to the Baptist church, where he had arranged for their supper, after which the parlors were at their disposal until time for the evening session. To this Commr. Palmerlee said, "Not for the sake of getting even, but for the sake of the supper, I move that we go;" and the motion was adopted with applause.

The thanks of those present was then extended to Supt. Machan, who in return expressed his gratification at the interest shown in his paper, after which the section proceeded to the election of officers, Commr. Maybee of Jackson Co. being chosen as president. A neat little speech was made by the new president as follows: "Whatever honor is conferred in this, I thank you for it; and it is all the more acceptable from the fact

that I have not asked a single person to mention my name, nor did I expect it. I thank you for the compliment, and my energy will be directed toward assisting the officers whom you shall choose to supplement my work.

T. J. Reavey of Tuscola county was elected vice president, Miss Flora Beadle of Barry county, secretary, and the following were named by the chair as members of the committee to revise ninth and tenth grade work: A. N. Demoray, J. L. Wagner, H. R. Pattengill, Melinda L. Mills, J. A. O'Leary.

The same question that was discussed in some of the other sections, namely, whether the expenses of sections should be borne by the general Association or by the individual sections, was considered, and Commr. Palmerlee selected to wait upon the Executive Committee as a representative of this section. Adjournment.

FRIDAY, 7.30 P. M.

The largest audience of the week awaited the beginning of the evening program, the first number of which was a vocal solo rendered by Miss Anna MacNeil with such skill as to elicit an encore, to which she responded with "Little Doris." Prayer by Rev. H. S. Jordan was followed by a duet from Messrs. Esselstyn and Daniels, "Flow gently Deva." This, too, was loudly applauded and "The Pilot Brave" given as an encore, after which Pres. Thompson announced the subject of the evening.

THE ENFORCEMENT OF THE TRUANCY LAW.

HON. H. R. PATTENGILL, LANSING.

The most essential factor in the growth of free government by the people has been the education of the masses. The one great reason why the experiment of self-government in America proved more successful than in other countries, was because our people recognized the necessity of a generous and liberal education, and provided means early in our history to bring about this condition of affairs. It is too late in the history of this country to spend time in arguing upon the necessity of education; it has come to be a recognized truth, and we will consume no time in discussing that proposition. It has always seemed strange, however, that people so willing to tax themselves to support good schools should allow those who need this education most to refrain from coming under the influences of our schools. In what other way can America assimilate the vast number of foreigners who yearly come to our shores?

It would seem that every parent would desire to have his child educated; it would also seem that every child coming to the years of responsibility in this country would desire to have an education. But it is too true that there are many parents too ignorant or too indifferent on this subject, and who permit their children to grow up without even the rudi-

ments of an English education. Attempts have been made in very many states to inaugurate and enforce a compulsory school law; but until the past year such laws, so far as we have been able to learn, have been very nearly inoperative. The last legislature in Michigan enacted a compulsory school law that will *compulse*. Pennsylvania is the only other State in our union, according to our knowledge, that has one at all. When entering upon the duties of the Superintendent of Public Instruction, your present superintendent planned throughout this State twenty-one educational councils, to which he called all school officers, superintendents, and patrons who were most interested in the affairs of our public schools. At each of these places long discussions were held upon the topic of compulsory school law. The suggestions which were made from all classes in various parts of the State were carefully noted down, and the result was that a new compulsory school bill was brought before the last legislature. The prominent characteristic of this bill was that it provided for imprisonment of the parent who wilfully neglects to comply with the provisions of the law. The old law was weak in that it merely provided for a fine, and in cases where no fine could be collected, of course the law had no terrors. By insertion of the words "or imprisonment," new life was put into the measure. The provision for cities is much better than that for the country; this because we found it impossible to pass the bill with a provision equally good for country and city. The question before us tonight is more especially concerning the operation of this law, and its enforcement throughout the State during the short space of time which has elapsed since the bill went into effect. In order to ascertain more generally the correct condition of affairs, the Department of Public Instruction sent out the following circular to superintendents of city schools and county commissioners of country schools:

[Circular No. 42.]

STATE OF MICHIGAN.
DEPARTMENT OF PUBLIC INSTRUCTION,
Lansing, December 10, 1895.

DEAR SIR: For the purpose of obtaining information concerning the workings of our new law for compulsory attendance at school, I desire definite answers to the following questions. The Superintendent of Public Instruction has been asked to prepare a paper on this subject for a meeting of the State Teachers' Association, and therefore your answers must be prompt to be of use.

1. What is the general sentiment among school officers and patrons in your locality relative to the necessity and efficiency of the law?
Ans.

2. Have truant officers been appointed? If so, give names and addresses of those for the schools under your supervision.
Ans.

3. Have there been many instances of a refusal to obey the law?
Ans.

4. Are your teachers aiding the school authorities in their attempt to enforce the law?
Ans.

5. About how many, if any, pupils have been caused to attend school on account of the enforcement of this law?
Ans.

6. How many parents or guardians in your locality have been arrested and prosecuted for a failure to comply with the law?
Ans.

7. What penalties have been inflicted, or what has resulted from the arrest?
Ans.

8. How many truants have been committed to either of the State Industrial Schools?
Ans.

9. In the space under this number please make any general statements which will be of interest to the State Teachers' Association?
Ans.

Very truly yours,
HENRY R. PATTENGILL,
Superintendent of Public Instruction.

Out of 71 cities to which this circular was sent, 52 have reported; also 55 commissioners. A compilation of these replies appears below; but, inasmuch as the law provides that the attendance in rural schools is to be but four months without specifying when this period begins, it is but just to state here that time has hardly elapsed for its proper enforcement even in vicinities where wide awake officers are alert to the merits of the law.

Commr. of county.	No. of superintendents reporting.	No. of commissioners reporting.	Estimated number caused to attend school on account of this law.	No. of parents arrested and prosecuted.	Penalties inflicted or results of arrests.	No. truants committed to Industrial School.
Arenac	----	---	About 100.			
Barry	----	----	About 50.			
Bay	----	----	Probably 100	1	Imprisonment two days.	
Branch	----	----	One township has increased attendance of 40. Increase in 12 townships.			
Calhoun	----	----	Probably 200.			
Cass	----	----	Knowledge of law causes many to attend.			
Charlevoix	----	----	6.			
Genesee	----	----	Outside of Flint about 80	1	Sentence suspended provided children were kept steadily at school.	
Gratiot	----	----	A marked increase.			
Hillsdale	----	----	25 by notification.			
Huron	----	----	Attendance increased greatly.			
Ingham	----	----	Some in nearly every district.			
Jackson	----	----	3 outside of Jackson city.			
Lapeer	----	----	About 30.			
Lenawee	----	----	Probably 40.			
Midland	----	----	A goodly number.			
Montmorency	----	----	Many have sent rather than be compelled to. Its influence in this way is marked.			
Osceola	----	----	About 200	----	----------	1
Otsego	----	----	30 or 40.			
Saginaw	----	----	50 outside of city.			
Shiawassee	----	----	Regularity of attendance increased.			
Van Buren	----	----	20 or 25	----	----------	1
Wexford	----	.	One or more families in most districts had to be warned.			
Berrien	----	----	200.			
Dickinson	----	----	30 to 50.			
Ontonagon	----	----	4.			
Newaygo	----	----	Fear of law caused many to attend	1	$5 fine. Carried to circuit court and awaiting trial.	
Alcona	----	----	5.			

Name of city.	Estimated number of children caused to attend school on account of this law.	No. of parents arrested and prosecuted.	Penalties inflicted or results of arrests.	No. of truants committed to Industrial School.
Adrian	10 and many irregulars made regular attendants.			
Alpena	50.			
Ann Arbor	12.			
Bay City	200 in public, 500 to 600 in public and parochial	20	Suspended sentence, first offense. A few brought up for second offense and fined 5 or 3 days in jail. Two spent 3 days in jail and since then have been no second offenses.	
Belding	15.			
Benton Harbor	From 75 to 100	------	One pleaded inability to keep boy in school; boy placed under suspended sentence and has been present every day since.	
Charlotte	4.			
Coldwater	40.			
Dowagiac	30. Expect more next term	2	Suspended sentence.	
Eaton Rapids	25.			
Escanaba	15.			
Flint	Enrollment 140 greater. Per cent of attendance increased from 93 to 97. School census about the same	------	------	1
Gladstone	15.			
Grand Ledge	6	1	Suspended sentence.	
Grand Rapids	Between 400 and 500	4	$5 and costs or 10 days in jail. Fines paid in two cases and in two cases judge suspended sentence during regular attendance of children in school.	
Hastings	25.			
Hillsdale	10.			
Holland	10 to 15.			
Hudson	8.			
Ionia	30.			
Iron Mountain	45.			
Ironwood	50	3	$3.30 in each case. Result—children of those families have been in school every day since.	
Jackson No. 17	140.			
Lansing	166	------	------	1
Lapeer	20	------	------	1
Ludington	20.			
Mancelona	8 or 10.			
Manistee	100. About 50 brought in directly by means of warning notices.			
Marine City	50.			
Mason	25 to 30	1	Discharged.	
Midland	30.			
Mt. Clemens	Several	------	------	2
Muskegon	Perhaps 200	15	Cases discont'd where parent agreed to send child. One case where parent refused to send after arrest, fined heavily. Case appealed. Meanwhile parent is in jail and child in school	3
Negaunee	50.			
Owosso	40.			
Pontiac	About 12. Room crowded now. Waiting till Feb. 1 for new building before general enforcement.			
Port Huron	125	------	------	1
Saginaw, E. S.	------	4	In every case parents have complied except one and he was sent to jail.	
Saginaw, W. S.	75 to 100	10	Suspended sentence.	
St. Clair	50	2	$5 and costs or 10 days in jail. No fines paid.	
St. Joseph	15 and many came expecting the enforcement.			
Sault Ste. Marie	Not many, because of crowded condition. New building Feb. 1-enforce law.			
West Bay City	Enrollment 363 better than last year, one Catholic school closed. Would have had more but no room.	1	Suspended sentence	2
Jackson No. 1	Nearly 100	------	------	1

* Total increase in attendance 2,377. Fifty-two reported, five did not answer above questions, and the remainder were unable to make estimate. Truants released on suspended sentence were reported as follows: Flint, Lansing, and Negaunee one; Hudson, 2; Marine City and Jackson, No. 1, three.

The following are replies to question 9 of the circular:

COMMR. G. A. WOOLSEY, SAGINAW CO.

Parents in many localities are now sending as the direct result of the law. Some Germans are sending, although they would rather send to the parochial schools.

SUPT. T. A. CONLON, EATON RAPIDS.

The law is a good one, and just what was needed to compel the attendance of certain classes, and its results will be shown in later history. Give us more such laws.

SUPT. M. L. PALMER, JACKSON.

We agitated the matter thoroughly for six weeks before sending out the truant officer. As a result, when it became generally known that the officer was out, many came in without sending them notice.

SUPT. W. S. PERRY, ANN ARBOR.

We had to stop enforcing the law because of lack of school accommodations. We did not anticipate such an attendance, but shall build before another year.

COMMR. W. H. MAYBEE, JACKSON.

It is thought to be a very necessary law, yet its efficiency is somewhat doubted.

SUPT. ALBERT JENNINGS, MANISTEE.

We believe the law is in some parts of it loosely drawn and vaguely expressed. Perhaps it would not endure the strain of an appeal to the Supreme Court. Nevertheless, the effect of the law is good. In its provisions and penalties it is a clear expression of an educational theory now firmly established among the American people.

SUPT. C. O. HOYT, LANSING.

Without exception every one commends the law. * * * Merchants who have heretofore used boys to distribute bills have complained to me that it is impossible to find one now. The labor unions are loud in its praise, because boys are taken out of shops and placed in school.

COMMR. O. G. TUTTLE, GRATIOT.

The general sentiment is that the law fills a long felt want, and is just what has been needed for several years. Its efficiency is conceded by all.

COMMR. MELINDA L. MILLS, MIDLAND CO.

All recognize the necessity of the law; but so many have asked me what steps to take when the children are needed at home—really needed to keep the wolf from the door, and then where children are not sufficiently clothed, to keep them comfortable at home, even.

COMMR. H. C. FOXWORTHY, WEXFORD CO.

It would seem to me that in each district the director should be the truant officer, as sometimes the truant officer lives so far away from the offender that he is let off too long.

SUPT. E. P. FROST, NORWAY.

The first case of truancy was very promptly attended to, which, I think, prevented repetition.

COMMR. H. B. FULLER, MONTMORENCY CO.

The township district officers enforce the law best and easiest. They seem to be a more imposing body of men, and people are more willing to obey their orders.

COMMR. CORA M. GOODENOW, OTTAWA CO.

Wright township is the only one that appears to be indifferent. Otherwise not a single complaint has been made against the law's being unjust. A goodly number of my directors issued circulars to their patrons, and these circulars brought in the children without any further effort. I am quite proud of my county in this work.

COMMR. A. G. RANDALL, CALHOUN CO.

Teachers and commissioner should be urged to assist in the rigid enforcement of the law. The law should be changed as applied to country schools.

SUPT. O. L. MILLER, CHARLOTTE.

Why not make the law compulsory for five days in the week and for the full school year.

SUPT. S. B. LAIRD, DOWAGIAC.

If the time for beginning was stated, it would be easier to carry it out. Much good will doubtless be accomplished in its present form, but more would be realized if a definite time for starting it was given.

SUPT. J. A. STEWART, BAY CITY.

The present law is the only effective compulsory school law ever passed in Michigan. All others have been dead letters, due to the fact that the parents could not be punished if they neglected to comply with its provision. Any one who will visit the schools and see the large girls and boys brought in by the law who are down in the very lowest grades, will be strongly impressed with the feeling that it is high time for such a law. There is a feeling among some that the children in the country should be treated the same as those in the city,—at least so far as the age limit is concerned.

SUPT. L. H. WOOD, MIDLAND.

It seems to me that the great need at present is for teachers to become personally responsible for those pupils who have been entered under the truant law. These pupils are usually found behind their respective grades and will need special attention; and if teachers will interest themselves in behalf of these needy ones, visit their homes, try to make the school room inviting to these strangers, they can do a great deal toward helping out the truant officer, and very likely arrest the growth of many truants in the direction of crime. I believe it is this smaller number of our pupils who need our constant and most painstaking attention. In some cases the interest of the teacher should take a practical turn, by way of securing comfortable clothing for the children.

SUPT. GEO. A PARKER, MARINE CITY.

Many persons who do not understand and appreciate the object of the truant law, feel that they are being made the victims of some oppression, and that their rights and independence in home government are being curtailed in some way. In such cases their antipathy and resentment are reproduced in the schools, making some trouble for teachers, but falling heavily upon the heads of superintendent and school officers who are held responsible for the enactment of the truant law. Of course that feeling is in the minds of those who are not considered the leaders of intellectual culture and educational development. Some report attendance at the parochial schools, and I do not know how well they are doing, but the officer says they are all in. We have boys in school now who range from 8 to 14 years who cannot read in the first reader and in the chart classes. They have grown up on the streets, supposedly attending parochial schools, but in reality getting only the schooling of the worst elements of the streets and wharves. Such pupils are offensive in manners and appearance—fit subjects for missionary efforts.

It will be seen from the foregoing that, as a whole, the law has been most exceedingly helpful in our State. Somewhat more than three thousand persons have been directly brought into school by the immediate effect of this law, and the moral effect in toning up thousands and thousands of others, cannot be estimated. It will be seen that, where the truant officer has been able to corral one or more refractory youngsters and bring them into the school, or where, for obvious reasons, he has been obliged to bring the obstinate and pig-headed parents before the officers of the law, giving them to understand that they must either see to it that their children are in school or be themselves placed in jail, the effect upon others has been most advantageous. They have not waited for similar treatment in their own cases, but have been very expeditious in seeing that their Johnny or Sarah were taken from the street and put in a way to receive the education which every American youth should have.

It is undoubtedly true that some hardships must be endured in the rigid enforcement of this law. It may be that some widowed mother depends upon the earnings of some fourteen-year-old boy. When, however, could a law of this kind be enforced that would not bring hardship? How much longer should we wait before enforcing this law merely because some few are to be discommoded? If the law is properly enforced for a few years, there will be no child of an age capable of supporting a mother, who has not received an education sufficient to excuse him from the provision of this bill. I only regret that so many of our newspapers in reporting paragraphs of this sort seem to belittle the law by making prominent the cases where they think some great hardship was wrought by its enforcement. Oftentimes when these cases are run to cover, it has been found that the family is either not in so destitute circumstances as reported, or that it has other means of support, or that the boy is a newsboy, and the newspaper itself finding some difficulty in securing boys for its work, seeks thus to villify the provision of the law and make it unpopular with our people. I am glad to state, however, that in one case, at least—that of the Evening Press of Grand Rapids—a school has been organized and a most efficient teacher placed in charge; and the newsboys employed by that company are given a full day's schooling at such times as will not interfere with the distribution of their papers. Would that all the newspapers of the State were thus public spirited, or at least would stand most loyally by a law which is for the preservation of our country, and for the spread of intelligence and the propagation of the usefulness supposed to lie in the newspaper.

In nearly every large city of the State the law has been enforced honestly, conscientiously, and with a fair degree of success. In Bay City, under Truant Officer Wyman, there has been most exceptional progress. Between six and eight hundred children have been brought into the school by means of this measure. In Grand Rapids also there has been a great reinforcement of the schools by means of the careful carrying out of the provisions of this law. Muskegon, Lansing, the Saginaws and Flint, have all reported heartily as to the progress made. In short, Detroit is the only large city of the State that has not reported. As the representatives of several of these larger cities are present, I will not enter into details concerning their work, but leave it for their superintendents to represent them in the discussion.

I wish, however, to say to this audience and to the people of this State, that I do not believe there was ever a law placed upon the statute books

of Michigan that is more far-reaching and has the uplift of our State more at heart. There need be no fear as to the popularity of this law. It may be true that in certain localities some loud-mouthed demagogues or shysters may seek for a time to hoodwink the people into the belief that it is a tyrannical and unjust measure; but my acquaintance through the State is so large and my faith in the people so great, that I believe there will be a most enthusiastic rally to its support; and the man who shall be so bold as to seek to strike it down, will strike a blow at our schools and at our flag. We have no right to tax childless wealth, except for the general good of the people, and it is suicidal on our part to allow those who need this education most to go without it. The law may need amending. It should be made as strong for the country as it is for the city. There should be a distinct statement as to the time when pupils should begin to go to school in the country, so that over-reaching and designing people may not thwart the purpose of the law by paltry excuses as to when they expect to have their children begin school. More of the villages should be brought under the provisions for city schools.

Now, a word to the teachers. It has given us pleasure to note that in nearly all these instances the truant officers report the cordial coöperation of the teachers in the city schools. And let me urge upon you all the necessity of meeting these truant girls and boys at the school room door with a kind and genial heart. Let them feel that they are coming to a kind and pleasant home. By your loving sympathy and your enthusiastic instruction, lead them to love school and education. Who can measure the value to the three thousand pupils that are thus brought into the schools of the State? If of this number there shall be but one hundred the current of whose lives is changed by this initiation into the schools, who can measure the untold value it shall be to the State? The child thus saved will live not only to bless the day when the truant officer brought him to the school, but hundreds and thousands of others may live to bless the day that changed this child's life from a life of ignorance and vice to a life of intelligence and uprightness. Now is the crucial time in the workings of this law. Let every loyal lover of his country and lover of the school stand forth and speak loyal words in favor of the enforcement of the compulsory school law. Let there be no cowards nor cravens in our ranks; we are right, *everlastingly* right. It is a law which is not only helpful to labor, but it is helpful to capital, helpful to the State and to the nation. Heplful to labor, because it takes from the shops and factories the child competition of labor; helpful to capitalists, because it gives a more intelligent and more contented class of laborers in this country; helpful to the State and nation, because an education is a better safeguard than a standing army. We hope that each teacher will go forth as a champion for this measure, explaining its provisions, sustaining its principles, and creating a public sentiment which shall be irresistible in favor of the measure. Let us seek to make the people of America come fully up to the ideals of McKay when he says:

Success to trade, success to spade,
  And to the corn that's coming in;
And joy to him who o'er his task
  Remembers toil is nature's plan;
Who, working, thinks, and never sinks
  His independence as a man.

DISCUSSION.

Opened by SUPT. W. W. CHALMERS of Grand Rapids:—

Fellow Teachers:—I come before you tonight with no prepared speech. I want to state that in the outset. I have something to say to you, and I want to say it in a simple and descriptive way, describing to you what we have done the past four months in Grand Rapids. I would rather, however, sit and listen to a man who has something to say or wishes to tell about something he has done or some experiments he has made. We listened to such an address last night; it was masterly. Dr. Hall has been experimenting along the line of his lecture last evening, and his lecture did not sound to us like a discourse written to fill up time, as a man who sits down and writes a speech to last ten minutes or twenty minutes, and works in a lot of words like concentration, correlation, sequential, etc. He simply said some things he had in his heart to say.

Now, we have in Grand Rapids a chair and a desk for every pupil of school age in our city. We have raked the city of Grand Rapids with a fine-tooth comb, and no boy or girl between the ages of 7 and 16 years has slipped between the teeth. We have found some children who have escaped the notice of the superintendent of schools, school principals, school teachers, truant officers, and board of education for several years. I have in mind now a girl twelve years of age who never attended school in this country; she was *found* this year.

I have been trying for some time to induce our board to take the census by school districts instead of by wards,—by primary districts instead of in the old way, but they were a little averse to a change. However, I finally secured their permission to recompile the census by ward divisions. I put three clerks upon that the first of August, and the first day of school I handed to our principals lists of every child of compulsory school age in their primary district. "These," I said, "are the children who ought to report at your buildings next Monday morning. Please convene your teachers Monday or Tuesday evening, requesting them to bring their rolls, and check upon this list the pupils who are in their school; then step over to the Central Grammar and check the children there; then the other children ought to be in your school or in the parochial schools adjacent to your district." They gave this their immediate attention, but found, after checking from the various reports, that there were 75 or 100 in their districts who were not counted there. We had prepared polite notes with no insinuation of languishing in jail, simply stating something like this: "For obvious reasons it is desirable for all children to enter school at the first of the term. Why is not Henry in school?" This was sent to Mr. Jones. This note was torn from a blank book with a stub bearing father's name, child's name and address. When the answer came from Mr. Jones that his boy Henry was in Petoskey and would attend school next Monday, the note was returned to the stub. Perhaps a note would come back saying that Henry was out in the country, was sick, was working at the furniture factory, or at the cider factory. Then a note would follow, if he were in any of these factories, that it was necessary for him to report at school, a copy of the compulsory school law being printed on the back of the note. This perhaps would be followed up by a personal call from the principal, and all but about 15 or 20 per cent of the children who were out of school the first week were raked into school in this way. There were some, however, who did not report. These names were handed to the superintendent, and note No. 3 was written. This note was delivered to the truant officer who made a personal call and delivered the note which read as follows: "Mr. Jones:—You are hereby notified to cause your son Henry—twelve years old—to present himself with the necessary text-books at the Fountain Ave. School next Monday. N. B. A failure to comply with this request will subject you to fine or imprisonment." That note had the desired effect. After receiving permission from the police judge and the prosecuting attorney of the county, we had forms of complaint and criminal warrants printed for these special cases. These criminal complaints are filled out by us when, in our judgment, such steps are necessary. They are then signed by the prosecuting attorney and the police judge, the warrant is served, and the prosecution follows wherever necessary.

We have had few cases of prosecution. We have punished only two men in our city this year, and the two served the purpose. We tried to make the cases typical. We took a case that happened to get into the papers,—the one referred to by our State Superintendent. It was a case of destitution where a very pretty article appeared in the local paper about the reduced circumstances of the family and the severity of the board in compelling the boy to attend school. I have looked up this case personally,

called upon the mother, and made a few notes; found out the boy's name and where he worked; how much money he got; where the girls were working. When we brought this case which had created so much talk into court, we were able to report that the people were living in a house that cost two and one-half dollars per month, and that they had an income of $21 per month besides the wages of the boy we were trying to force into school. One other case which is worthy of attention. This was where a man sent his boy and girl to school; they were twins thirteen years old. The boy was working in a cigar factory; the girl was working out. He sent his girl Tuesday afternoon, all day Wednesday, and Thursday forenoon every week. It did her no good, and did the school untold injury. We had him arrested for irregular attendance of his girl; he was fined five dollars and costs or ten days in jail, and the girl has been in school ever since. I tell you, fellow teachers, that everything the State Superintendent has said here in regard to buncombe politics and the sympathy that has been expressed in our papers, and the statements that this law is working hardship to the poorer people, is true; and if you were to go to the foundation of these stories, you would find they are not founded on facts. I tell you that this law is doing an immense amount of good. I know it; I see it every day.

One week ago yesterday we had 834 more children than we had in school the same day the year before; about 334 of these children are probably due to the increase in population in our city, but I think about 500 of them would be out of school were it not for this law.

SUPT. F. R. HATHWAY of Flint:—

Ladies and Gentlemen:—I wish to discuss this question from the standpoint of a superintendent of schools in one of the smaller cities of the State, a city of say 10,000 or 11,000 inhabitants. I wish further to discuss it from the standpoint of a superintendent who has honestly tried to enforce the spirit, if not the letter of the law.

It seems to me the best way to follow this discussion will be along the line of my personal experience in trying to enforce the law.

When the census returns were handed in, we checked off upon those returns all pupils that had entered the public schools,—that is, all the pupils between the ages of seven and sixteen. I then called upon the Catholic Priest and checked off all the pupils that he would take care of: we have the best of an understanding, and whenever either can assist the other in the work of enforcing the law, he does it gladly. Having thus checked off all pupils that were in regular attendance, the next thing was to make a tabulated report, showing the number of children between the ages of seven and sixteen who were out of school. This revealed facts that were new to me. First; we found that the best school ages in the city of Flint are the two years; ten and eleven; that is, there were fewer children on the street of that age than of any other. The next interesting fact that appeared to me was one which refuted an idea I had; viz., that there were more boys than girls out of school who would be affected by this law. When I came to compile this table I found that the sexes were evenly balanced; this was true in all the wards. I found only four more boys than girls out of school. The next interesting point I noticed was the age when children drop out of school. I found contrary to my first notion, that the girls drop out of school a year earlier than do the the boys. and that there is a marked increase in this respect when our children are compelled to climb to the highest floor of the central building. The fact that girls leave school a year earlier than do boys, may probably be accounted for by the fact that there is a corresponding difference in the age of puberty. Another fact was, that wealth has nothing whatever to do with the attendance in Flint. I found in one of the wards of the city, that when I came to add the sum total of real and personal property and divide by the number of names on the ward census roll, there was $750 for each child; in another ward I found that there was $3,500 for each child; but when I counted the number of children out of school I found that, as long as we kept these children in the ward schools, there were fewer children out of school from the poor than from the rich wards. However, when we came to bring these children into the central school building, which has always been located in the richest ward in the city, I found that the proportion was changed and that there was a decrease of attendance from the poorer wards. When we keep pupils in their ward schools the children on the street increase uniformly with the wealth of the ward; but when we send them to the central building, the exact opposite is true. I account for this fact in three ways. First, pupils in the central building dress better than do pupils in the ward schools; second, the poorest pupils are farthest removed from the central building; third, usually pupils enter our central building at the beginning of the fifth grade; they are at that time called upon to purchase nearly all the books used in the entire grammar grade, and this tax falls most heavily upon the poor families and, coupled with the two other

causes, induces the parent to take his child out of school. He then quiets his conscience by the argument that the child is old enough to earn something and thus help support the family. The above facts conclusively demonstrate to me that those who have the opportunity of building up a school system for a city, should not use the people's money to erect a great central building in which to do the major part of the school work, but rather in erecting as many ward buildings as are necessary, and in equipping these buildings so that in them shall be taught as many grades of work as possible. In this way the public school system of a city will be brought to the door of the masses, and the children of the poor will be kept in school a greater number of years.

Having compiled this report, we went to work to bring in the children who were not in school. We adopted notices similar to those in use in Grand Rapids. These notices were issued by the superintendent and served by the truant officer. I call your attention to two or three results.

First, we brought into the city schools of Flint 125 pupils,—not only that, but we have kept them there since we got them. I mean this; the per cent of attendance this year is from one and one-half to three and one-half per cent better than last. This has been true not only of one month, but there has been a steady and uniform increase. The number of days' school taught this year during the first four months is ten per cent greater than for the corresponding time last year. Tardiness has been decreased about twenty per cent.

Second, you cannot, I think, enforce this law, without taking into consideration another fact which has been impressed upon me. This work brings the superintendent of schools in direct contact with the lowest elements of society. The people of Flint told me that there were few cases of extreme poverty in that city. However, when I began to delve into this work I found some terrible conditions. We had to establish an organization and provide means whereby we could clothe these children. There has been brought into my office all kinds of clothing, money was also handed in. My reason for preferring voluntary contributions to a legal appropriation from the poor fund is that I think this appeals to the nobler sentiment of the people. I think it is teaching our boys and girls and older citizens that "it is more blessed to give than to receive." We have found it necessary to clothe not less than ninety children. I might, if I had time, go into detail as to the method we used to raise this money; but see I have taken nearly all my time.

Third, one of the most interesting points in the enforcement of this law was the establishment of an ungraded school. This school is to me a source of pride. There are, in this school, 25 boys; and when I look those boys in the face I know that the teacher has such a grip on them that they could not be driven away. In that school we are having a per cent of attendance of from 92 to 93, and only two or three cases of tardiness each month. Three-fourths of those boys we have had to clothe. Several of them, nearly sixteen years old, are learning to read in the second reader; but they are willing to work with me and with that teacher.

I now pass to what seems to me to be two defects, serious defects, in this law. Still, with these defects I call it one of the best laws that has ever been passed by the Michigan legislature.

First, the last section in that law provides that the justice of the peace must suspend sentence for the first offense. You cannot send a boy to the Industrial School for the first violation of the law. The very fact of your putting that phrase into the law robs the law of one of its best features. When I meet those boys and talk with them I find that they do not care if they are arrested, provided sentence must be suspended for the first offense. The law is robbed of its sting so far as those boys are concerned. Then, if you do not leave it to the option of the justice whether he shall sentence the boy for the first offense, you are doubling the expense of the enforcement of the law, so far as conviction is concerned. Each conviction costs at least ten dollars.

Again—and here is, to my mind, the most serious objection to this defect—it is sometimes necessary to put these boys in jail, and I tell you here that there are not a half dozen jails in Michigan in which it is ever proper to put a boy. I had to put a boy in our county jail. There was no place that we could put him among the men, the result was that we had to put him in with the women and he had to stay there two weeks. You say that the boys do not have any chance, if you give the justice of the peace the right to send them over the road for the first offense. A boy cannot be sent over the road without the consent of the truant officer, superintendent of schools, city marshal, justice of the peace, county agent of corrections and charities, and judge of probate. Any one of these men by interposing his veto can save the boy from sentence. There is no opportunity here for collusion. Surely the boy's interests are well enough protected by these gentlemen. If it is the unanimous judgment of these six men that

a boy or girl should be sent to the Industrial School, there is not the slightest doubt but that such a sentence should be inflicted. It is therefore a farce to require that sentence should be suspended for the first offense.

Second, Section 1 of the law provides that, "in cities having a duly organized police force", the attendance of pupils shall be continuous; i. e., every day in the week and every week in the school year. In all other localities the compulsory attendance is limited to four days in the week and four months in the year. Moreover, in the former case the time when pupils shall begin school is plainly stated; in the latter it is not. These are two of the most important features of the law; the first is vital. You will notice that the whole question of whether you can force a child into school four days in the week or five, four months in the year or ten, turns on the single question of whether or not the city has a "duly organized police force." I have consulted several lawyers as to the meaning of this term, but without getting any satisfactory answer. I have also written to the State Department of Public Instruction, and received in reply the comforting information, "This department does not feel competent to answer your question." Now it strikes me that the most vital feature of this entire law should not rest upon a clause so ambiguous that the State Superintendent of Public Instruction cannot interpret it. In Flint we have a city marshal, a deputy city marshal, and two night watchmen. I fancy that this is about the average police force in the smaller cities of the State; not to exceed ten Michigan cities have a greater. The question is this, is such a force a "duly organized police force?" If so, the law means something to us the entire year; if not, it is effective for but four months.

Notwithstanding the above serious defects, I believe the law to be a righteous one, and unite with Supt. Pattengill in the opinion that, when the law is amended, it should be amended by its friends, not by its enemies.

SUPT. J. A. STEWART of Bay City:

Mr. President, Ladies and Gentlemen:—I feel like congratulating our beloved State of Michigan upon the successful enactment of the compulsory school law. I am well aware that for years past there have been attempts to frame such a law. I am conscious of the fact that there are, on our statute books, compulsory laws so-called; but they were laws in name only, not in reality. Their great and vital defect consisted in the omission of a penalty which could be enforced. From an undue regard for the feelings of those who deserved no such consideration, our law makers allowed men to defraud their children of an education, and to compass a crime against the government. At last it became apparent to all that only the strong arm of the law could reach men so blind to their own interest and the interest of their family, so degraded as to sell the birth-right of their children for a mess of pottage; and as a result, we have our first effective law upon the subject.

There can be no division of opinion upon the desirability of such a law. It may, and undoubtedly will, throw a greater responsibility upon our shoulders. It may to some extent lower the tone of our schools by giving us a turbulent, backward class of scholars; but, as true teachers, loyal servants of the State, we welcome the responsibility and shall hope, by the persuasive power of love, to win the hearts of these unwilling subjects. They should be made to feel that in the teacher they have a firm, self-sacrificing friend, and that the strong arm which gathers them in, brings them nearer to a heart that beats in sympathy with theirs. Let us not deaden this most important law by cold and impassive submission to its requirements; but let us hold up the hands of those appointed to carry out its provisions, and let us put into it a heart that throbs with vital energy.

I am pleased to report from Bay City, where we are fortunate in having an excellent truant officer, backed by an equally determined judge—two very important factors—that there have been brought into the schools, public and parochial, more than 600 children by the operation of this law. I would also state that it is not sufficient for children to report at school in compliance with the notice served upon them by the officer; but we are making a strong effort to keep such scholars in regular attendance.

As the first step in the enforcement of the law, there were printed 100 copies of all names upon the school census list of children between the ages of seven and sixteen. These names were by wards and in alphabetic order. A copy was left at each school, and the teachers were instructed to cross off the name of all scholars in attendance.

The next step was for the truant officer to compile these reports, look up the residences of children not in school, and serve notice for them to report the following Monday in compliance with the law.

The third and last step was for the teacher to keep the officer properly posted, and we have finally settled upon the following plan: Every Tuesday morning the principal in each building sends to the officer a report in three divisions, giving first, the

names of all scholars enrolled during the week; second, names of scholars marked left, if absent a week or more, including reason for absence, if known; third, names of scholars who re-enter after having been reported to the office as left. In all cases we give age, residence, parent's name, and date. Names of scholars irregular in attendance may also be included in the report. As a result of this united and persistent effort, there have been 734 notices served. One hundred and three have been excused for the following reasons: 52, upon sworn statement of being over sixteen years of age; 25, children of widows in destitute condition; 12, physically unable to attend school; 10 who let the city, and 4 working in printing offices; 27 others are to report Monday, January 6, while 604 have already reported in school.

There have been 133 parents arrested for the first offense, upon whom sentence was suspended, and 11 are arrested for the second offense. Of the latter, 7 were again let off on suspended sentence, and 4 were fined five dollars, or three days in jail. Two of these took their Thanksgiving dinner in jail, one paid his fine, and one appealed his case to the circuit court, but has since withdrawn his appeal and sent his child to school. There have been no arrests for the second offense since the day before Thanksgiving. There are many yet to be reached, but our officers are gathering them in, and our school board is kept busy providing accommodations for them. A new eight-room building will be opened in February; a four-room addition will have to be put on another building the coming summer; and, if necessary, I believe the citizens of Bay City will be ready to add another building to their school system.

TRUANT OFFICER A. D. WYMAN of Bay City:

Ladies and Gentlemen:—I feel highly honored to get up before this audience of intelligent people this evening. I am not a school superintendent or principal, neither am I a teacher. I am simply a truant officer, and have been working in this capacity for the past ten years. The compulsory education law, I am happy to state, is just what we have been seeking for the past ten years, and it has now reached the proper person; it has got hold of the person who is really at fault. Now, in saying what good has come from this compulsory education law, I will endeavor to tell you the experience we have had in the past, and the good results that we have had since this law has been in operation. First, it has reduced the number of truants. Last year, during the period of the first four months, there were 42 children reported to me as truants, and a great many of them were arrested for the first offense. This year there have been only three; this shows that the root of the evil has been reached. The parents were responsible for this, and they knew they would be held responsible, and for that reason they have forced their children to attend school. The children have only been truants because of their parents having kept them out. We have especially noted the fact that girls who are between 14 and 16 years of age, are kept in school, consequently they have no time for anything else. In the evening instead of being on the street, they are doing the work they had formerly done in the day-time. We are sure that this is true. The police have reported that a great many of our girls who were accustomed to be on the streets, are not there.

Our superintendent has said that there were 734 notices served upon parents to compel children to attend school. The operation of this law has had an excellent effect, because we were supported by the superintendent of schools, by the prosecuting attorney, the police justice, and by all the teachers in the city. They have co-operated with us, giving me all the information I asked for. When we found children were not in school, notices were served; then followed the arrests. Some were not arrested the first week, but we kept after them until we had made 133 arrests. Then we met difficulties in the police court. It was developed that a great deal of poverty existed. I then went to the circuit judge; he has always given me the best of help, and has been willing to tell me a way out of my troubles in regard to these matters. He said to me, "I will look up this law and find if there is not some way in which we can clothe these children. Come up in a week." I asked him if it would take a week to look the matter up. He said he wanted to talk it over with the people and get the sentiment. I called again, and he said he had not done much. I then sent out superintendent and president of the board, and they brought about just what we wanted. A communication was sent to the mayor of the city, he communicated with the council, and they appropriated a thousand dollars out of the liquor fund with which to clothe the children. We all know that it is the parents of these children whom we have to clothe, that created this liquor fund. Now, out of this thousand dollars we have clothed 96 children at a cost of $208.50, being about $2.16 per capita. These children were comfortably clothed with this small sum, because some of them only needed rubbers, some needed a cap, and in this way we clothed the 96. But this

is not all that were clothed; people sent in donations of from $15 to $50, and with this we have clothed from 150 to 175 more.

We have two ungraded schools and three night schools. Our superintendent reported that there were, I think, 25 who were excused on account of parents being in destitute circumstances. In those cases the children did not miss school entirely. If they are compelled to work in the day time, they attend two hours in the evening; and the good results that we have had in the city have been highly appreciated by our citizens who believe in the enforcement of the law. They have been with us, and have given me encouragement in enforcing it, although I have had some business men come to me who say that I am a little too harsh. I tell them there is no one in a position to know better than myself about this, as I go to the homes, I see the hardship, and no one can tell more about it than I myself know. As Mr. Pattengill has said, I hope that in future, instead of doing one thing to do away with this law, we will add to it and make it better.

SUPT. M. A. WHITNEY:

As I understand it, there is considerable expense connected with making so many arrests and bringing before the justice so many people. I would like to inquire if there has arisen any objection on the part of the city officials in regard to this matter.

MR. WYMAN:

There is no extra expense in our city because the officers work on a salary.

SUPT. HATHAWAY:

The work has been done in the city of Flint without a single arrest. The 125 children have been put in schools, and put in without any arrests. Only one boy has been arrested for truancy.

W. S. SLY, Supt. of the Rocky Beach Association, asked permission to address the meeting, and introduced his remarks very happily by saying that, at so late an hour, he felt almost as if his were "coming in on the sly." This Association has established the first of a series of preventive training homes west of Petoskey, as an institutional plan for aiding the efforts of philanthropic individuals for the prevention of crime, and has 700 men and women out in the State looking up homes for the little ones gathered there. According to Mr. Sly the truant law is missing the remedial effect it desires, since the truants put into school are still truants at heart until you change their entire environment. The large number of truants have no mothers and the gap between the indigent work of Coldwater and the reform work of Lansing, may be bridged over by the rescue work being done by the Rocky Beach Association, for which he bespoke the sympathy of all.

PRES. THOMPSON then expressed his belief that all present would carry from this meeting some inspiration to do better work in future, and the meeting was adjourned.

SATURDAY 9 A. M.

The morning program was introduced by a piano solo from Miss Retta Knight of the School for the Blind. Devotional exercises by Rev. Osborne, were followed by a sweetly rendered solo from Miss Elsie Jensen, and reading by Clarence D. Redcliff, both also from School for the Blind. The latter is a twelve-year-old boy who has had but two years' teaching, and yet could open a book at random, find a designated page, and read such selections as "The Attack on Petersburg" or "Evangeline" with a readiness that would do great credit to a boy reading with eyes instead of fingers, having had no more schooling. He also gave an exhibition of type-writing, and clicked off the following with astonishing skill: "Michigan School for the Blind brings greetings to the State Teachers' Association."

Miss Bronson of Lansing executed a piano solo, and Sec. McKenny gave a short explanation on behalf of the executive committee, regarding the late issuing of the programs, which were delayed partly by the illness of the president, and partly by other untoward circumstances.

Dr. Boone, as chairman of Committee on Resolutions, submitted the following report:

To the Michigan State Teachers' Association:

Your committee appointed to draft and report to you such resolutions as the occasion requires, beg leave to submit the following:

(1.) *Resolved*, That we express, as the unanimous sense of this meeting, an appreciation of the steps taken by our State Superintendent, Hon. H. R. Pattengill, in establishing a Department of Child Study, and the material aid proffered by him for the furtherance of this most important branch of education,

(2.) *Resolved also*, That we tender our thanks to the officers of the Association, who were instrumental in bringing before Michigan teachers that authoritative leader and exponent of the new education, Dr. G. Stanley Hall, whose address has opened to us so rich and suggestive a field for original thought and investigation.

(3.) *Resolved*, That we express our thanks to the Committee on Course of Study for their admirable report, and our appreciation of the prospect of good to come from the discussion.

(4.) *Resolved*, That we congratulate the State of Michigan upon the efficient services rendered by Supt. H. R. Pattengill in securing important and valuable school legislation, in raising the standard of teaching through improved institutes and examinations, and particularly in securing to every child an opportunity for a common school education through the enforcement of a most efficient compulsory attendance law.

(5.) *Resolved*, That we commend strongly the personal and professional benefits to teachers resulting from membership in and attendance upon the meetings of the National Educational Association; and that at the coming meeting in Buffalo, Michigan should be represented with an attendance proportioned to the character and efficiency of her excellent system of education.

(6.) *Resolved*, That we extend our thanks to the children of the Lansing schools, the M. E. Sunday school orchestra, and the soloists and others who have favored us with music during our sessions, thereby adding much to the pleasure of our meeting.

(7.) *Resolved*, That we hereby express our appreciation of our efficient corps of officers, including the Executive Committee, who have arranged our excellent program, perfected our plans, and conducted this, one of the most profitable meetings in the history of the Association.

(8.) *Resolved*, That we approve of the aims and plans of the State Reading Circles for both teachers and children, and bespeak for them a larger patronage, as a means of fixing and supplementing the culture of the schools.

Respectfully submitted,

RICHARD G. BOONE,
W. J. MCKONE,
E. L. BRIGGS,
Committee.

Supt. Chalmers: At the meeting a year ago there was a Transportation Committee appointed, whose duty it should be to secure for Michigan teachers reduced rates upon the Michigan railroads during vacation. We were unable to make any impression upon the passenger department of the State, and we recommend that the number of teachers throughout the State who would take advantage be ascertained, and this be given to the railroad companies.

This recommendation was referred to the Executive Committee.

Supt. Pattengill: I move that a committee be appointed to act as Transportation Committee. This committee might take upon itself the work of urging our teachers to go to the national meeting, getting hotel accommodations, and thus aid materially in securing good accommodations.

This motion being carried, the chair appointed as such committee, H R. Pattengill, C. T. McFarlane, Nettie D. Kimberlin.

Sec. McKenny read the following telegrams:

INDIANAPOLIS, IND., Dec. 28, 1895.

Michigan State Teachers' Association:—

The members of Indiana State Teachers' Association acknowledge your kind greeting and extend a cordial greeting to the teachers of Michigan.

HOWARD LANDISON, *President.*
JOS. R. HART, *Secretary.*

MILWAUKEE, WIS., Dec. 28, 1895.

Pres. Teachers' Association:—

Wisconsin teachers 900 strong, return greetings to Michigan.

G. L. BAUMAN, *Secretary.*

Supt. Hoyt, as chairman of the Committee on Professional Ethics appointed one year ago, said:

A word of explanation perhaps is necessary before submitting the report. As you have noticed upon the program, a paper upon the subject of Professional Ethics was announced. This paper was read one year ago. There being no time for discussion, this Association appointed a committee to prepare a condensed report to present to this meeting. Your committee has prepared such a report. It has been printed, and copies have been placed upon the desk. It was the sense of the committee that this should be read by the committee on resolutions; but as that committee has reported, it may not be out of place to read the following:

To the Michigan State Teachers' Association:

Your committee appointed at the last meeting of this Association to consider a code of professional ethics, would respectfully report as follows:

Both from the paper read upon that subject at the last meeting and from the nature of the limited discussion following it, your committee regards it as desirable that this Association adopt certain articles constituting an ethical code which may, in a sense, represent the consensus of opinion of the teachers of the State of Michigan, and one to which teachers are willing to assent, as embodying the highest sense of honor and right.

To this end we would beg leave to submit the following articles for discussion and consideration, and we would furthermore ask that the articles as amended and adopted be embodied in the report of the Committee on Resolutions.

1. No superintendent or teacher should become a candidate for a position until it has been definitely decided that the present incumbent shall not remain longer than the present term of contract. When a board of education has taken such action as precludes the present incumbent from being an applicant, or when he has announced that he is not a candidate for re-election, it is proper for another to enter the field as an applicant.

2. No teacher while under contract should make application for another position, without first securing permission from the board of education for a release in case of an election.

3. A superintendent should never make a proposition to a teacher under contract with another board of education, to leave his position

during the term for which he has contracted, without first securing the consent of the superintendent and the board of education to give the teacher release from his contract.

4. Each member of the teaching profession should exercise a spirit of loyalty, by giving to other teachers the benefit of his influence, by being careful not to criticise either his predecessor or associates harshly, and by speaking a good word for them whenever possible. He should avoid doing whatever might tend to weaken the influence of his fellows with school officers, fellow teachers, parents, and pupils, and most emphatically he should never underbid another.

5. In a contest for a position, none but strictly honorable means should be employed by the contestants and their friends. After a board of education has made a choice of a teacher, it should be considered unprofessional for the defeated candidate to criticise the successful one, or to charge him with incompetency or of having resorted to unfair means in securing the position.

Respectfully submitted,

C. O. HOYT,
C. H. GURNEY,
E. P. BRADLEY,
Committee.

DISCUSSION.

Opened by SUPT. J. W. SIMMONS of Owosso:

The question is certainly an important one, and with a brief reference to the articles as given I wish to add two more that are not mentioned in the list. A paper unique, valuable, to the point, read by Supt. Hoyt a year ago and printed in our proceedings, has undoubtedly been read by the majority present. A discussion then took place by Messrs. Hinsdale and Gurney, and two other gentlemen whose names I do not now recall, covering the field pretty thoroughly. With this brief reference, I will pass to the first article about a superintendent or teacher becoming a candidate for another person's position before a known vacancy has occurred.

There is a great amount of underhanded, miserable work done by teachers throughout our State in this respect, Every year our school board has a standing joke with me. Every year they receive a dozen or fifteen or twenty applications for my position, and I know for a number of years back they have handed me a bundle of letters and asked if I would select my successor. I have seen gentlemen upon the floor of this hall this week who have been perennial applicants for my position. I wish to say, however, that I am still a candidate at home; I still hold the fort, and when I do not want it, I will let you know. Possibly you are not aware that I am so well acquainted with your correspondence, but I am, and some of it I will say is underhanded and is spoken of in decided terms of criticism by members of our school board. These superintendents will write and say that they have heard that the board is dissatisfied with the superintendent; that they believe he is not strong along certain lines; and that they have been told by immediate friends that the board have asked if there is desirable material in the field. They have never heard any such thing, I know. I will say again that I am still at home in Owosso. If any of my friends wish to correspond with me, I will be glad to hear from them.

Secondly, "No teacher while under contract should make application for another position, etc." Now, I will not call any names—it would be unprofessional—but I will say that we employed a certain applicant for a prominent position in our schools in June last. We turned away many applicants that stood an equal chance, and the position was tendered to a certain lady, accepted, contract made out, all the preliminaries arranged. Three days before our September term commenced, we received a letter from this lady in southwest Michigan, tendering her resignation and begging that it be accepted at once. We declined to accept a resignation at that time, and wrote her that it was too late. She telegraphed a reply at the expense of the board, that she would take the next train for Ill. Every year I hear about many such cases, and occasionally we are the sufferers ourselves. It is contemptible, it is unprofessional, it is unjust, that

any teacher under contract should violate that contract. As has been said (I think in the *Moderator*), if any board three days before school began should, in their estimation, find a better applicant, and should write to some one under contract that they had found a more desirable person and consequently would not need that person's services, what a howl would go up! But what is binding upon the board is binding upon the teacher. In regard to this same question; I do not think there is anything dishonorable about the method I am about to suggest. Suppose I am under contract, and a more desirable field opens. I think I would like to be an applicant and secure the position if I can. I believe I have a moral right to go to my school board and lay the case before them, telling them what I would like to do; and if they give their consent, I have a right then to progress as far as I can. I have the moral right—it belongs to me as a citizen—to go before that board and be released, if they see fit to do so; and if they say no, then I should go back to my work and work as hard, if not harder, than ever.

Now, in regard to a superintendent or other official meddling with a teacher under contract. We have had such meddling. I never have meddled, for I consider it contemptible. As has been announced from the desk, I am desirous of securing at once two eighth grade teachers. Suppose some teacher should come to me and say, "I am under contract, but I think I can get out. I think I can hand in my resignation and break with my board, or come against the wishes of my board," I would rather lock our school room doors than have such a person in our schools. I think that brings me back to the point I touched upon before. If that teacher knew of the vacancy with me and wished to put the proposition before her board, I should consider that she had a perfect right to do so.

As time will probably cut me off in this discussion, I wish, as I first said, to turn your attention to a matter which has not been touched upon,—testimonials. I shall not call names, I shall not cite places. Some of the following instances have come under my own observation during my brief experience, and some have been told me by my friends. A gentleman not now in Michigan, a gentleman who has been here in the official desk of our State Association, once a superintendent in this State, probably lost his position —a very important one—by unprofessional means. Through his say-so, or influence, several teachers, eight or ten, were dropped for inefficiency. (There are those here who are acquainted with these circumstances.) Some of these teachers who were dropped from the corps went to the superintendent and asked for testimonials, and he wrote them out—gilt-edged. They published these testimonials in the papers of their own town and this act caused his downfall. I heard this said yesterday—no matter by whom: "We wanted a teacher, and applications with testimonials came in, among others one of considerable length praising a certain applicant in all particulars. Later, that testimonial was undermined by private correspondence that did not go with the testimonial." I consider the indiscriminate giving of testimonials by boards of education, by superintendents, by principals, by the University, the State Normal, and college authorities,—I consider that this is doing the schools of Michigan a great wrong. It has come to the point that my board of education say they have lost all confidence in testimonials; and this has come about through so many of our professional men and women giving testimonials, simply because they cannot say no. As I have but a minute or two left, I will simply touch upon another feature not mentioned, and I hope I will not be misunderstood; that is, the book agent, and the superintendent and his corps of teachers. The book agent is a necessary part of our school system. He does us a great good and can do us a great injury. To the honor of some in that business, be it said that I have never heard them say, nor have I heard others say about them, that they meddled with the superintendent's position; but it has been said of some that they boast of having the power to make or unmake the superintendent of schools. There have been some who have gone about to boards of education and peddled this little thing or that little thing, and said "We have been into your schools and we found this and that," or "the standing of such person is so and so;" and so throughout the State they have tried to undermine that teacher. They have put a little leaven into the lump, and sometimes it has worked and caused a great deal of injury. And so I wish to say that I condemn, as thoroughly unprofessional, the spirit of the book agent that will go about and meddle with affairs that are not his affairs, and affairs that do not concern him. I would then emphasize these points: that we have no business to meddle with persons who are in positions until that contract has expired; that we ought to be loyal to each other; and, lastly, the contemptible spirit that some teachers will show in the matter of underbidding other teachers, and saying unkind things about those who have preceded them should be put down. I have in mind at present a young lady teaching not far from where I teach. She is in a country school, having taught there two years, and another person underbid her five or eight dollars on a month. The board

told her she could keep the position, if she wished to do so at the reduced price; and so she is obliged to suffer that injustice because of the underbidding of another.

I am in hearty accord with the articles as printed. I give them my sanction, wish they could be more thoroughly emphasized; and I wish we could root out from our profession the many little, contemptible, unprofessional things.

COMMR. D. E. MCCLURE of Oceana county:—

If teachers entertained high notions, such as they ought to entertain, concerning education, professional ethics would be amply provided for in the conduct of every teacher. The golden rule should constitute the entire code; or, to be a little more specific (not that I shall say anything that is original, anything that is new), first, the relation of *teachers to teachers:*—just so long as human beings are selfish, just so long as they are jealous, just so long as they are under the press of want or false pride, men will seek positions and sometimes disregard the rights of their brother workers. This has grown out of the ideal dominating our education. Iago's advice to the disappointed lieutenant, "Put money in your purse," has become the shibboleth of education. There isn't any remedy for this except that we change the ideal from that of money to that of character. To do this, teachers must become imbued with higher ideals of life—in a word, become imbued with the teachings of the Master.

Second, the "high water mark" in any profession requires that a man shall rejoice over the prosperity of his fellowmen. I fear, if this be the test, that many of the men will dwell in shoal water until a better day dawns educationally; they will never be in danger of drowning. W. M. Hunt of Boston, frequently congratulated his brother artists upon the beauty and magnificence of their work. He took real pleasure in recognizing the success of others. Contrast this spirit with the *narrow, selfish* spirit exhibited by some teachers—God save the mark—toward their brother and sister workers. Without the spirit of Mr. Hunt, an educator is a gilded biped—

"This spirit away,
Men are but gilded loam or painted clay."

The age in which we live is troubled by two dangerous diseases; the envious hatred of him who suffers want, and the selfish forgetfulness of him who lives in affluence. So long as teachers in their usage of one another repeat from generation to generation the bloody history, in spirit, of Cain and Abel, our education will have more of sounding brass and tinkling cymbal than of genuine uplift to humanity.

Third, as regards professional ethics in other relations, more can be said. Teachers securing positions make specific contracts with boards of education and teach a portion of the year, seeking or not seeking, as the case may be, better positions while working for this particular board. An offer of a better position is made to this teacher. He hands in his resignation to the school board. The board can do but one thing under ordinary circumstances. If the teacher is retained against his will, the board cannot expect first-class service at his hands. If it wishes to retain him, it must raise his salary. The board cannot feel that this is altogether the right thing to do. If he goes, the board must seek a man to fill his place. Essentially, it cannot hope to do this successfully. We therefore enter a strong protest to this growing abuse. Teachers are quick to resent conduct on the part of the board similar to the conduct I have described. They call it gross injustice. It would be an advance professionally if teachers, when they make a contract, lived up to that contract regardless of an offer to do some kind of work, regardless of an offer to step up higher in their chosen profession.

It would be an advance in professional ethics if teachers, superintendents, and commissioners would always help each other, speak a good word of each other, for each other. It will be a good advance professionally, manly and womanly, in leaving 1895, standing on the threshold of 1896, if we all remember, "Education is *to know* for the sake of living, not to live for the sake of knowing."

SUPT. BRIGGS: I do not care to discuss these papers, but as this in the form of a report, I move its adoption by the Association. Carried.

SCHOOL MANAGEMENT.

WM. AUSTIN ELLIS, PRINCIPAL OF DUFFIELD SCHOOL, DETROIT.

There is nothing in America so idolized today as the public school. The people who shout the loudest for it, know the least of what it really is or what it ought to be. The public school system is a great and glorious system, but we can never depend upon public enthusiasm for its success; we can never depend upon aught else than the highest kind of training. I am not going into any philosophical discussion; I am going to consider the subject practically. If any of you have ever had one boy on your hands—I mean a little boy—for any length of time, you know very well what a difficult process it is to deal with him. We all know, of course, that what is truly practical is scientific, and what is not scientific, cannot be practical. Still, for the short time I am to occupy, I must attempt to suggest only a few general considerations and not philosophize at all. Dr. E. E. White says, "I find myself increasingly discrediting the practical value of the *philosophy* of psychology to teachers as a class. Scores of ambitious teachers are now struggling in philosophy beyond their depth, and some are in distress, because their blind attempts to apply it in teaching are unsuccessful. How often do you hear an institute instructor who is to give a few lessons in the teaching of reading or number or drawing, start off with a half hour's floundering in what he supposes to be the philosophy, or psychology of the process. What the teacher needs is a clear knowlede of *psychical facts*. The philosophy of these facts may well be left to philosophers—at least until they reach some practical agreement."

I wish to call your attention to that characteristic of the human mind whereby, given the proper environment, we do certain things without being trained to do them. Nobody ever teaches a little child to talk; he learns it instinctively. So there are many other things in the public schools which we must learn heroically to eliminate from the curriculum; eliminate in the daily exercises many things that we do today, simply because we do not realize that, if we let the thing alone, it will take care of itself, and that, in a few weeks or months at the most, the child will know it, at least here in America. We spend a great deal of time in teaching one and two and three, when every child knows one, two, and three, and higher numbers usually. There is a great deal of this going on in the schools all the time. If we will give it our personal attention, we can very soon eliminate much that we have to do in school, and we can have the school running in a very simple and easy manner. The teacher must so manage as to gain the orderly attention of the pupils without *disturbing their minds* or antagonizing them; without putting them out of proper relations or disjointing them from her and from the school. Good management does these things; and, in the hands of a skillful teacher, it does them effectually. The children of the public schools must be controlled; we must take all the pupils as we find them, and arrange and classify them; we must organize them; we must take methods which experience has shown to be the most productive of good, and apply them; and we must push the pupils along through their classes in the freest way possible,—but we must have classes, must have

grades. Ingenuity has found no other way. We must put limitations on the children; we must manage them: but the point I wish to make is that we are not to put any more limitations on them than the circumstances make necessary. We are to uphold nature in all her ways. The most delightful characteristic of study is spontaneity. We are not to interfere with that characteristic. The child who has the most of it will make the greatest man or the best woman, if it is properly trained. We are not to break down this spontaneity. The control we exercise over these children must go as far as is necessary, but no farther, in order to make instruction possible. This control must be reasonable. The child knows more than we give him credit for. Children, even in the beginning grades, learn very quickly what is necessary and what is reasonable in school, and they have their sense of justice and of right.

Teachers must also have affection for the children in the school. Children know whether the teacher cares for them or not; and they make great allowances, if they feel that the teacher really has affection for them. We should not break down the spirit of the children. Educators have changed their ideas upon this subject. Those of you who are acquainted with horses, know how much more valuable a spirited horse is than one of no spirit. For some time before we had electric cars in Detroit I had a lazy horse; but when the electric cars came to the city, I had to get a more spirited horse, in order to drive with any degree of safety among the cars. We well remember when the plan on some farms was to let a colt run freely without a blanket upon him, nothing done, spirit unchecked, until the animal was two or three or four years old; and then all the boys and all the neighbors put a heavy harness on him, and proceeded to break him down. That is not done any more. Even people who are training animals have learned a better way. The colt is haltered now as soon as it can stand upon its feet; it is handled with familiarity; it is treated with kindness; there is an association with it; it is driven beside the mother when a few months old. Everything is done to encourage, stimulate, and direct action, and to respect the laws of nature.

As a small boy I was brought up on the farm, and I count the time spent there as the most educative of my life, because I had a natural amibtion to do things. These are some of the things I did. I made a wagon and trained a dog to draw it. I made an ox yoke, and broke the yearlings and two-year-olds to draw a sled in the deep snow. I broke five or six colts that I myself had taken care of, and fed and grown up with during all their lives; and I did not have a single accident. I did these things before I was twelve years of age, and am proud of it, although you may think me egotistical. I mention the age at which these things are done by boys on the farms as an illustration of the common mistake that has been made by not putting manual training into the elementary grades. It was thought that all that was necessary was to set up a manual training shop in the high school grades. If intellectual activity is to be brought about by manual training, if the mechanical instinct is to be developed by the actual doing of things with the hands, that instinct must be developed at an *earlier* age than the high school. In the lower grades it should commence with form drawing, with cutting and folding paper, then cutting and folding cardboard, then thin wood, and then bench work in the 7th and 8th grades.

If kindness is the proper thing in the training of animals, it surely is the case in the training of children. We are to treat these children wit'

kindness, with courtesy, with care. Prof. Dewey says that the disciplining of small children should be incidental; that the old idea was to send the children into the other room just for the sake of sending them, or disciplining them; but now we should send them out of the room because we wish to *use* the room.

We are to remember their circumstances. Here are two children in the school; they are just as unlike as it is possible for any two individuals to be. The teacher cannot treat these two children alike. There are too many teachers who look upon a school as a whole, *en masse*. You cannot get good results in a school, unless you are in contact with each child in the school, and take into consideration the circumstances of each. Just so far as our schools attempt to even up or even down the children of the school, just in proportion as we have attempted to do that, just in that proportion have we wronged the children, have we wronged the community. We can never even up the school without wronging every child in it, for there is no average child there. What we want of the school, therefore, is to give play for genius within the school. Let no one say I am attacking the graded school system, for I am not. I believe in the graded school system as thoroughly as does any person whom I have ever met. I have no patience with those people who think that the old-time free and easy, go-as-you-please district school was better than the graded school. The graded school is the ideal school; but while I say that, I am as opposed to the abuses of the graded school as anyone.

Four years ago the school board of Cambridge, Mass., made provision for the more rapid advancement of pupils in the grammar schools, by adopting a plan whereby the work may be done more easily in less than the full time of six years. For an explanation of the plan, I refer you to the N. E. A. proceedings for 1894 or to the report of the Cambridge school board for 1891.

The former rule of the school committee was as follows: "The grammar schools shall be divided according to the degree of advancement of the pupils in their studies, each into six grades; but in each grade, except the highest, a separate division may be formed and special instruction given to such division, in order to enable the pupils composing it to complete the course of study in a shorter period than six years. Last year, under this rule, 10% of the graduates did the work in four years, 27% in five years, 45% in six years, and 18% in seven years or more, those taking more than seven years being only a fraction of 1%. It is expected that under the new rule a larger percentage will complete the course in less than six years, and that there will be a corresponding decrease in the number of those who take six years or more."

At about the same time this four and six year system was introduced in Cambridge, we adopted at the Duffield school in Detroit a different system of transferring pupils at irregular intervals and of double promotions, which is as follows:

At the end of the term I ask each teacher for a list containing the names of about ten of the brightest pupils. During the seventh or eighth week of the next term, I ask the teacher for a list of names of about ten of *her* brightest pupils. I then compare these two lists, which were prepared by different teachers, but concerning nearly the same pupils, and if I find the name of any pupil occurring on both lists, I consider it safe to put him in the next highest class on trial. I usually find an average of five such pupils in each room, and nearly one hundred pupils for the

whole school. There are nine hundred pupils in the school and eighteen teachers. Usually eight out of the ten pupils who are promoted on trial in the middle of the term, pass at the end of the next term. Last week I talked with more than one hundred of these pupils who had been promoted in the middle of the term at some time in the school course, and in nearly every case they were glad that they had been allowed to do double work for a term. In our 8th grade room of seventy-five pupils, I found twenty-four who had been thus promoted at some time in the course; and I found only one who was sorry for it, she being a girl of sixteen years old who, on account of ill health, did not enter any school until she was eleven years old.

The graded school makes its mistake in the thought that it must even up or even down all the children. No, what the graded school means is that they shall so work together that every child shall have every conceivable opportunity of getting the most possible out of his associates and through his associates. The evil of the public school system, so far as any evil has come from it, has been very largely the outgrowth of our idea that we can make "bookish" boys and girls out of *all* the children that come to school. We cannot make "bookish" boys and girls out of all. As a matter of fact, we learn, all of us, more from human nature than we learn from books or from nature; and every business man knows that what has made him a success in the world has never come out of books, but has come from his knowlege of human nature. There is not a professional man in any calling who has made a success of it, who does not owe a hundred times as much to his knowledge of men as he does to his knowledge of books. Preachers who are successful owe many times as much to their knowledge of human nature as they owe to a knowledge of theology. And the graded school makes a fatal mistake when it assumes that it must make "bookish" boys and girls out of all the children there, and that they have a right to mark them down if they do not get a 100% or 70% in book knowledge.

We are also responsible for interesting the child in his school work. Interesting is not *entertaining*; it is not amusing. My little boy attended the kindergarten for two years, and I have only the highest words to speak of the kindergarten spirit; but there is always a liability that the kindergartners will fail in their mission, if they devote themselves exclusively to entertaining and amusing the children. We need to be very careful that we do not confuse the amusing of children with the interesting of them. By interest we mean a desire to know more. In those school subjects where *interest is an important matter*, as it is not in number work, but as it is in geography, in language, in reading, in history, in music, and in drawing.—we want the child to be interested and to have a desire for the subject. Fellow teachers, the school has no mission, if it does not give the pupils an appetite. We cannot teach our pupils much today that will not make them back numbers in a few years, if they do not learn anything after they leave school. This appetite we must create in the school.

This is sometimes called the age of children's books. Let us give the children the very best English, even if they do not understand all of it. If the boys and girls could be brought up, not on the second best, but on the best that has been written, whether they understand all the words or not, and if they could be so filled with these examples of excellent English that they would not be, as *we* often are, overcome with dismay at the

sight of a blank sheet of paper, but could sit down with a pencil and a sheet of paper and readily express their thoughts; if we could do that for the little children,—give them a love and a passion for such really fine literature, my friends, we would see the result of it in a few years. Our English speech would be finer and sweeter and more accurate. We would not have following us and taunting us this deterioration of character of our boys and girls, because of the poor books that they read. I do not mean the really bad books. I mean simply the worthless ones that give us nothing; that give us no higher outlook, no higher idea; that leave us and the world no finer and no better after the pages are closed.

We cannot give our children three things that would be of greater resource, protection, and safeguard than these: an understanding and intelligent love of the world about them, a love of nature and an understanding of and love for good books and fine literature, and a capacity for friendship with the good and noble and true.

Another phase of school work is the discrimination between the important and unimportant. Any business firm that is successful today, is as careful to get men and women who are quick as it is to get men and women who are accurate and careful. One of the important things of a school is to have the boys and girls awake, alive, getting forward with all the speed that is in them; and the school that neglects this phase of its work and fails to appreciate the importance of activity and progress, fails largely of its mission. Most of us remember the time when *dates* in history were considered very important. There is nothing in mathematics that will stimulate our minds as teachers more than the studying along this line of discrimination between the important and unimportant. We can do it all along the line of school work.

There are three sources of universal knowledge; books, nature, and human nature. Teachers should learn that the beauty of the graded school system is that there are several scholars of about the same age or about the same general acquaintance with things, and about the same general ability, who can help each other; and the school ought to be a place of learning one from the other, rather than a place of learning from the teacher or from books primarily. Let them learn something from books, but much from each other. The teacher who will learn from her pupils is doing more than the teacher who *insists* that the pupil shall learn from her. If teachers could be lead to believe this and practice it, the pupils would have some time in school for oral expression. The time is now largely taken up by the teacher's talking too much. In the average school there is not more than four or five minutes for each pupil to express himself orally, provided the teacher does *no* talking. The time for each pupil is considerably less where the teacher does all the talking.

Let us see that we bring the public school into touch with the world as it is. Let us see to it that the school life of today beautifully works with nature. Let us see to it that the schools work with human nature as well as with nature, and that they work with the industries of the world. Let us see to it that this school life of ours shall be illuminated, shall be literally electrified; and, as we have caught the lightnings out of the heavens and have harnessed them to do our bidding until they do a million things practically unheard of before, so let the school, with all its mystical power, be brought down and harnessed to every day life, so that in the house, on the street, in the shop, and *wherever the father works*, there the child may know more than the father.

Prof. George referred to the pertinent paper last year presented by Supt. Chalmers claiming there should be greater ease and facility in passing from one grade to another, and said he hoped teachers would not lose sight of the idea that the time between grades should be made as short as possible. In the sub-dividing of grades the principle should be this:—whenever the grade becomes so large that it must be heard in sections, then it is time to sub-divide into A, B, and C sections, thus making the transfer of bright pupils from one class to another comparatively easy. The individualizing of instruction is not a new question. It was discussed at the N. E. A. some nineteen or twenty years ago. It has been discussed by Commissioner Harris and Dr. White, and that it is still being discussed as the new question, shows how history repeats itself. Prof. George concluded with the hope that it would continue to repeat itself until something is accomplished.

Dr. Boone thought we had reached a time when the question should be, not whether the child can do the work of the fifth grade, but whether he can get more good out of the fifth than the fourth grade. School order is to be secured, school management is to be maintained, through the work of the school, and not through what we used to call discipline.

Supt. Chalmers was reminded of the remarks made by a farmer at the breakfast table, who had been attending the present convention, and who said next time he should take a pocket dictionary with him so he could understand what they were talking about. He thought a great many long words were used, and that the teaching profession was in another respect somewhat like the farmer, who often uses his machinery for a time and then fills up the fence corners with it and buys new, though the teacher often drags out the old machine, paints it up as new, and uses it again.

Supt. Pattengill said it made little difference whether the machine were new or old so long as it was a good one, and he hated to see people shrug their shoulders at every new thing, lest it should prove good for nothing or an old machine newly painted. If no progress had been made until people were sure every new thing were a good one, farmers would still be using the old sickle. What if they had thrown some machines into the fence corners! Meantime, through these efforts to improve had come the prefected modern reaper of today.

PRES. THOMPSON then addressed the Association as follows:

Ladies and Gentlemen:—This brings us to the close of another session of the annual meeting of the State Teachers' Association. It was not my good fortune to be present with you one year ago when you honored me with this position; but the little wires which tell stories so effectively flashed to me the news, and I assure you it reached an appreciative heart, a heart full of thanks to you for the honor conferred upon me. I was very glad, too, to know who my associates were to be; and I want to take another occasion right here to thank our efficient secretary, treasurer, railroad treasurer, and our Executive Committee, for the earnest and hearty support which they have given me in the responsible position which you tendered me a year ago. I thank you very heartily for this honor. I feel it an honor to be the president of the Teachers' Association of the State of Michigan, and I want you to know that I feel thankful to you for it. I also feel very much gratified at the loyal way in which the teachers have rallied to the Association at this time. I am glad, too, to

introduce to you at this time your president-elect, Supt. C. O. Hoyt of Lansing. I am very happy indeed to leave this Association in such good hands.

SUPT. HOYT responded as follows:

Fellow Teachers:—At this time I feel that I can say nothing more than to express to you my thanks for the high and distinguished honor that you have conferred upon me in choosing me for the president of the highest association of teachers in the State of Michigan. I can only express to you my appreciation of what you have done by giving you the best effort possible to make the next meeting of the Association as great a success as this has been. I feel and have felt for a long time that the State Teachers' Association is a wonderful power in the State, and that this power should be extended where it is most needed,—to the teachers of our district schools. We cannot help them if they are not here. Let us each, one and all, try to reinforce our numbers by getting to this meeting the teachers from the district schools. In conferring with some members of the Executive Committee I find this sentiment strong, (and it can be stated in a very few words) that the programs shall be issued not later than October 1, and that all sections wishing to be represented upon such program must have their program in the hands of the Executive Committee not later than September 1; if any sections are left off the general program, you who are here now will know the reason why. I ask the coöperation of the teachers of the State for our next meeting. It will be very gratifying indeed to all of us if we can have a meeting of the Association with one thousand members. I believe it is possible. It needs not only the coöperation of the city superintendent and the college professors, but it needs the coöperation of the commissioners and all teachers. Why cannot we in Michigan have a Teachers' Association where the superintendent comes from a city and brings his teachers with him, where the commissioner comes and brings his teachers with him,—a meeting that will do the most good to the greatest number. Again thanking you for the honor you have conferred upon me, and asking you for your hearty coöperation at the next meeting, I will ask what is the further pleasure of the Association.

SUPT. CHALMERS: I do not wish to make any motion, but simply wish to say that you will find the latch string out in Grand Rapids whenever you wish to come there. You will find the largest convention hall in Michigan free; music, free. We will offer you as good hotel accommodations as you will find in this city for a dollar a day, and better accommodations if you care to pay the advanced rates.

There being no further business to come before the meeting, it was at once adjourned, though the little groups of animated speakers that lingered here and there would seem to indicate much interest awakened in the various questions brought under discussion at this closing session.

HISTORICAL SKETCH

OF

INSTITUTE WORK

IN

MICHIGAN.

HISTORY OF TEACHERS' INSTITUTES AND INSTITUTE WORK IN MICHIGAN.

COMPILED BY PROF. DANIEL PUTNAM.

PREFATORY NOTE.—The main purpose of this sketch is to show the progress which has been made in the character and management of institutes, and in the nature of the instruction given in them.

I.

INTRODUCTORY.

The teachers' institute, like most other valuable educational agencies and institutions, had a very humble origin. At the beginning it was little more than an informal and voluntary gathering of the teachers of a neighborhood for mutual improvement or to listen to the instruction of a few older and more experienced teachers. Such meetings continued sometimes only for a day or two or three, sometimes for a longer period. There has been no little discussion in relation to the place where the first institute was held in the United States, and as to the person who had the honor of conducting this institute; I shall not enter into such discussion, but merely set down what seem to be fairly well established facts.

Barnard's Journal is authority for the statement that the first Institute in Connecticut was held by Mr. Barnard himself at Hartford, "in the autumn of 1839." The first institute in New York was held at Ithaca in April, 1843; this continued two weeks and was attended by twenty-eight teachers. The first in Rhode Island was held in 1844, and the first in Ohio in September, 1845, at Sandusky. The first institute in Massachusetts was held in October, 1845, at Pittsfield, and continued in session ten days. Institute work was commenced in other States about the same time. The first institute in Michigan was held by State Superintendent Ira Mayhew in October, 1846.

In his annual report for 1845 Superintendent Mayhew advocated the institute as one of the most available means for the preparation of teachers and suggested a liberal appropriation by the legislature for their support. He wrote; "I entertain the opinion that if the State has $25,000 to appropriate annually for the promotion of common school education, it would be productive of greater good to apply one or two thousand dollars, or even five thousand dollars, to assist in defraying the necessary expenses of maintaining teachers' institutes in the different counties, and the residue to the support of schools, than to apply the whole to the payment of unqualified teachers or even to those of ordinary attainments."

As previously stated, the first institute in the State, so far as can be ascertained, was held by Mr. Mayhew at Jackson in October of 1846. There were about thirty teachers in attendance. In his report for that year he says: "It should be generally understood that the main design of teachers' institutes is to impart professional instruction; to consider and discuss the best means of interesting and governing children in our primary schools, and the most improved and successful methods of imparting instruction in the several branches of study ordinarily pursued therein." He suggested that a series of five or six institutes be held in different parts of the State during the year 1847, expressing the opinion that they would be well attended and of great value to the schools.

The gradual improvement of public sentiment in relation to the preparation of teachers for their work, is indicated by the fact that the Board of Supervisors of Washtenaw county, at a meeting held in Ann Arbor, Oct. 21, 1847, adopted the following resolution:

"That in the opinon of this board the cause of popular education and the welfare and happiness of the citizens of this county, would be greatly promoted by the annual expenditure of a sum not exceeding two hundred dollars, in establishing and fostering the teachers' institute recently organized in this county for the improvement of common school teachers; and * * * we being impressed with the importance of the general diffusion of intelligence and virtue among the people, respectfully request the legislature of the State to pass a law authorizing the board of supervisors of this county, in their discretion, to raise by tax on the taxable property of this county, a sum not exceeding two hundred dollars annually, for the purpose of defraying the expenses of said teachers' institute and in supplying it with a board of instruction."

The State Superintendent recommended this resolution to the favorable consideration of the legislature, with the suggestion that a law be passed applicable to the whole State. A bill was introduced into the legislature at the following session, to provide in some way for the support of institutes; but public sentiment was not sufficiently advanced to secure its enactment into a law.

During this period the idea of establishing a Normal School was beginning to be entertained. But Mr. Mayhew, while favorable to the project of opening such a school at some later time, was so strongly attached to the plan of teachers' institutes and was so firm in the belief that, for the time being at least, they would be of more service than any other instrumentality in preparing teachers for the common schools, that he urged in his report at the close of the year 1848, that provision be made for a series of institutes, the expense of which should be paid from the interest of the primary school fund. He recommended that eight or ten per cent of the avails of the fund be appropriated for this object. He said; "This would, in my opinion, at present be far better than establishing a single Normal School, inasmuch as it would afford an opportunity of benefiting a greater number of teachers, in a more acceptable manner and at less expense. Very many teachers would attend a course of normal instruction to continue from two to four weeks, who would be unable to avail themselves of the benefits of a more extended course at a State Normal School."

The arguments and recommendations of the Superintendent produced no immediate effect upon the action of the legislature, but public opinion

was beginning slowly to ripen upon the subject. Institutes continued to be held here and there in the State, provided for by the zeal of the Superintendent and by the liberality of the citizens in the localities where they were held. Up to the time of the opening of the Normal School no legal provision had been made for their support. In connection with the dedication of the Normal School building, in October, 1852, an institute continuing three weeks was held, the expenses of which were paid from public funds by the Board of Education, such institute work being regarded by the board as legitimate Normal School work. For several terms after the school had been formally opened, institutes were held regularly at the beginning of each term, being conducted by members of the faculty of the institution. After provision had been made by the legislature for holding institutes in various parts of the State, these normal institutes were discontinued. The Superintendent of Public Instruction, in his report for 1853, speaks as follows of the relation between the Normal School and the institute: "The State Normal School is a fixed institution. The teachers'institute is migratory in its character; it may be held at any locality and in any section, and the Normal School is expected to supply its instructors in future. Teachers, thoroughly trained in the Normal School, will be expected to go out from the walls of that institution, attend the exercise of the institutes held at various points in the State from time to time, and thus virtually carry throughout the State and to the doors of the people of each section of the State—the blessings and advantages of the permanent Normal School. In this light they are viewed as most valuable auxiliaries to the Normal School, attracting not only the attention of the public by adding to its common stock of knowledge by means of the daily exercises, discussions, and debates upon educational and kindred subjects, but also a constant accession of pupils. * * * The best methods of school discipline are taught at the Normal School. The design of the teachers' institute in this respect, is to furnish a model for the teachers by which they are best enabled to govern and instruct their own school. * * * Thus the primary schools are directly and greatly benefited, and the benefits of Normal School training more generally and widely diffused. This great object is thus accomplished, and that, too, with an economy attainable in no other way. The best and most experienced teachers of the country, the professors in our colleges, men of science, for the most part afford their valuable services free of expense or at a small expense, either to the State or to the teachers."

It will be a matter of historical interest to know the instructors and the program of work of the first large and formal institute in the State The instructors and lecturers were as follows:

Prof. A. S. Welch, Principal of the Normal School.
Miss A. C. Rogers, Preceptress of the Normal School.
Prof. Charles Davis, New York.
Mr. Orson Jackson, Teacher in the Normal School.
Prof. S. H. Douglass, University of Michigan.
Dr. E. Andrews, University of Michigan.
Dr. C. Cutler, University of Michigan.
Hon. C. D. Swan, Boston, Mass.

Lectures were given by Rev. H. N. Strong, D. Bethune Duffield, Esq., E. C. Walker, Esq., Geo. Davis. Esq., and Hon. F. W. Shearman, Superintendent of Public Instruction.

THE COURSE AND ORDER OF INSTRUCTION.

FIRST WEEK. A. M.—COMMENCING OCTOBER 5, 1852.

	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
English Language.	Dedication.		Sentence—Dependent and Independent—Principal Parts.	Subject of a Sentence—Noun and Pronoun.	Subject of Sentence—Pronoun, Relative and Interrogative.	Review.
Arithmetic.			Notation and Numeration.	Vulgar Fractions.	Decimal Fractions.	Review.
Natural Science.			Imponderable Agents—Caloric.	Caloric—Reflection and Radiation.	Light.	Review.
P. M.						
Arithmetic.	Dedication.		Four first rules—Cancellation.	Vulgar Fractions.	Decimal Fractions.	
Natural Science.			Ebullition and Evaporation.	Caloric.	Light.	
English Language.			Method of Analysis of the Sentence.	Elocution—Elementary Sounds.	Subject of Sentence—Verb, Infinitive and Dependent Sentence.	
SECOND WEEK, A. M.						
English Language.	Object—Noun, Pronoun and Participle.	Objective Sentences and Clauses.	The Verb—Transitive and Intransitive and Neuter.	The Verb—Number, Person, Mode, and Tense.	The Verb—Its Participles.	Review.
Arithmetic.	Circulating Decimals.	Rule of Three.	Arithmetical Analysis.	Interest—Methods of finding.	Equation of Payments.	Review.
Natural Science.	Light—Solar Spectrum.	Electricity.	Electricity.	Acoustics.	Acoustics.	Review.

P. M.

Arithmetic.	Ratio and Proportion.	Double Rule of Three.	Percentage—Interest.	Percentage—Application to business.	Alligation.	
Natural Science.	Light—Chemical Properties.	Electricity.	Electricity.	Acoustics.	Elements of Atmospheric Air.	
English Language.	Elocution—Accent and Emphasis.	Elocution—Inflection and Modulation.	Elocution—Metrical Accent.	Elocution—Reading of Poetry.	Grammatical Analysis.	

THIRD WEEK, A. M.

English Language.	Adjuncts—Adverbial and Adnominal.	Connectives—Primary and Secondary.	Origin of Connectives.	Connectives—The Proposition.	Adjuncts of the Subject—Adnominal Sentences and Phrases, Adjective.	Review.
Arithmetic.	Bills of Exchange.	Extraction of the Cube Root.	Arithmetical Progression.	Mechanical Powers.	Anatomy and Physiology—The Bones.	Review.
Natural Science.	The Atmosphere—Barometer.	Atmosphere—Tornadoes and Whirlwinds.	Aqueous Phenomena.	Clouds and Dew.	Electrical Phenomena—Thunder Storms.	Review.

P. M.

Arithmetic.	Involution and Evolution.	Geometrical Progression.	Mensuration of Surfaces and Solids.	Anatomy and Physical Structure of the Human System.	The Muscles.	
Natural Science.	Atmosphere—Winds.	Elements of Water.	Rains and Fogs.	Frost, Snow, and Hail.	Rainbow and Mirage.	
English Language.	Adjective of the Verb—Adverbial Sentences and Phrases.	Adjuncts of the Object.	Grammatical Analysis.	Grammatical Analysis.	Rhetoric—Literary Taste.	

THE COURSE AND ORDER OF INSTRUCTION.—*Continued.*

FOURTH WEEK, A. M.

	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
English Language.	Laws of Versification—Blank Verse and Rhyme.	Varieties of English Measure.	Punctuation.	Punctuation.	Solecisms.	
Anatomy and Physiology.	The Digestive Organs.	The Digestive Organs.	Organs of Circulation.	Organs of Circulation.	Vocal Organs.	
Natural Science.	Geography.	Geography Lines.	Elements of Astronomy.	Elements of Astronomy.	Elements of Astronomy.	
			P. M.			
Anatomy and Physiology.	The Skin.	The Skin.	The Nervous System.	Organs of Respiration.	Vocal Organs.	
Natural Science.	Geography—Globe.	Geography.	Elements of Astronomy.	Elements of Astronomy.	Elements of Astronomy.	Review.
English Language.	Rhetoric—Right Use of Words.	Rhetoric—Style.	Grammatical Analysis.	Grammatical Analysis.	Review.	

NOTE—The order of exercises was somewhat varied from the above, but the course remained the same, being shortened, however, to three weeks.

II.

FIRST LEGAL PROVISION FOR INSTITUTES.

Superintendent Ira Mayhew, as we have already learned, was an enthusiastic advocate of teachers' institutes. While he believed in Normal Schools, he believed even more thoroughly in the value and importance of institutes. He labored "in season and out of season" to secure the enactment of a law for their organization and support. In February, 1855, the legislature passed an act providing that "Whenever reasonable assurance shall be given to the Superintendent of Public Instruction that a number not less than fifty, or in counties containing a population of less than twelve thousand inhabitants whenever twenty-five teachers of common schools shall desire to assemble for the purpose of forming a teachers' institute, and to remain in session for a period of not less than ten working days, said Superintendent is authorized to appoint a time and place for holding such institute, to make suitable arrangements therefor, and to give due notice thereof."

A sum not exceeding two hundred dollars was appropriated to pay the expenses of each institute, but not more than eighteen hundred dollars in all could be expended for institutes in any one year. Under the provisions of this law a series of six institutes was held in the fall of 1855, and a series of nine during the year 1856.

In the State Superintendent's report for 1856 a table is given showing the places and times of holding these institutes and the attendance at each. The two largest were held at Ypsilanti in connection with the Normal School. It is a matter of interest to observe the relative proportion of ladies and gentlemen in attendance, as compared with the proportion of each at an institute of today. Of the whole number 1,501, 542 were gentlemen and 959 were ladies.

The Superintendent in speaking of these institutes says that the deep interest manifested both by teachers and citizens proves "above a rational doubt, the acceptability and usefulness of the well-conducted teachers' institute. Indeed, I think I may safely say it constitutes the most popular and inspiriting feature of our excellent school system. * * * In an important sense it is a co-ordinate of the Normal School."

In 1857 a series of nine institutes was held. In respect to these the Superintendent reports that he was unable, on account of the press of other duties, personally to attend all of them, and as a consequence they had been less successful than the earlier ones, although he had furnished the best teachers he could obtain. He states that the sum of two hundred dollars had proved to be insufficient to defray the necessary cost of an institute, including traveling and other incidental expenses. For various reasons no State institutes were held during the year 1858.

Superintendent John M. Gregory reported, at the close of the year 1859, that a series of ten institutes had been held during the year, at an aggregate expense of $1,590; that the attendance of teachers had been twelve hundred and forty-two, four hundred twenty-two gentlemen and eight hundred twenty ladies; and that he had personally attended every institute, spending fully three months of the year in this work.

In 1860 a series of eight institutes was held. The Superintendent speaks in high terms of the success and general character of the institutes, and of the interest of the people in the localities where they were held, in the daily exercises and in the evening lectures. It may be worth our while to recall the names of a few of that generation of educational workers. Among them were Presidents Fairfield of Hillsdale college, Stone of Kalamazoo college, and Fairfield of Olivet college; Professors Graves, Olney, and Putnam of Kalamazoo; Welch, Sill, Mayhew, and Goodison of the Normal School; Abbott and Goadby of the Agricultural college; and Fiske, Estabrook, Hosford, Ripley, Kellogg, and others of whom the present generation has no personal knowledge.

Up to this time the law required an institute to be continued during ten working days. Experience led the Superintendent and others to the conclusion that, in many cases, it would be better to have an institute of only five days; an amendment was therefore secured in 1861 providing for institutes of that length, but appropriating only one hundred dollars for each of the shorter institutes, and retaining the previous limit of eighteen hundred dollars for the whole series of any one year. Of the eight institutes held in 1861, six were of five days' duration. The Superintendent says, "It had been proposed to hold fifteen or eighteen of these institutes during the past year, but the embarrassed state of the treasury and the troubled condition of the country forbade."

The following brief account of the daily exercises of one of these institutes, taken from the Superintendent's report, will be of interest as showing the nature of institute work in the State thirty-five years ago:

"On the evening before the opening of the Institute, a public lecture was given, as usual, by the Superintendent to a large audience on the subject of Moral Education. The necessity and practicability of some higher moral culture were shown, and the evils and dangers infesting or threatening our schools were explained:

Monday, 9 A. M.—The Institute was called to order and opened with appropriate religious exercises. Over one hundred were already in attendance; and, early as was the hour, several teachers had come more than twenty miles that morning to be present at the opening. After enrolling the names, followed some general remarks instructing the members as to attendance, attention, note-taking, and their general duties in the institute. A spirit of good order and earnest attention was thus invoked at the outset.

10¼ A. M.—Prof. Welch, principal of the State Normal School, lectured on primary teaching, explaining the object lesson and giving, as illustrations, lessons to the institute on the eyes and hair. Great interest was shown in the exercise.

11¼ A. M.—The Superintendent introduced the subject of arithmetic, explaining the various systems of notation and giving some methods of teaching notation and numeration.

2 P. M.—A general oral exercise in numbers was given to show the method of drilling pupils to habits of rapid calculation.

3 P. M.—Prof. Abbott of the Agricultural College, gave a lecture on English Grammar and the two methods under which it might be studied.

4 P. M.—Prof. Welch resumed the subject of primary teaching, English grammar and the two methods under which it might be studied. explaining what faculties of the child should be addressed and giving illustrations of the mode of teaching.

In the evening, Prof. Abbott delivered a lecture to a crowded audience on the History and Forces of the English language.

Tuesday, 8 ¾ A. M.—Devotional exercises, the Institute reading the Scriptures in concert.

9 ¼ A. M.—The Superintendent resumed arithmetic, explaining methods of drill on elementary operations, and giving the practical mode of teaching weights and measures.

10 ¼ A. M.—Prof. Welch lectured on primary teaching in reading and spelling, in connection with object lessons.

11 ¼ A. M.—Superintendent discussed addition and its proofs, giving modes of drilling the pupils to rapidity in the processes.

2 P. M.—Prof. Welch; primary spelling by sounds.

3 P. M.—Prof. Abbott; essential elements of the sentence.

4 P. M.—Prof. Fisk of the Agricultural College, lectured on physical science, showing some of the properties of heat, light, and electricity.

4 ¾ P. M.—A spelling exercise was conducted, to show a new method of teaching orthography.

In the evening the ample hall was crowded again, and Prof. Welch gave an interesting lecture on "Conversation."

Wednesday, 8¾ A. M.—Devotional exercises and singing.

9 ¼ A. M.—Prof. Welch; primary drawing, lines and letters.

10 ¼ A. M.—Superintendent; multiplication and several proofs.

11 ¼ A. M.—Prof. Welch; primary drawing and learning alphabet.

2 P. M.—Prof. Welch; methods of teaching composition.

2 ½ P. M.—Superintendent; subtraction and the two theories of its explanation.

3 P. M.—Prof. Abbott; English grammar.

4 P. M.—Prof. Fisk; heat, sensible and latent.

4 ¾ P. M.—A general oral exercise in numbers, on Prof. De Morgan's rules for rapid calculation.

The evening was occupied by the Superintendent, with a written address on "Educating Agencies."

Thursday, 8 ¾ A. M.—Devotional exercises, after which a reading class was conducted by one of the lecturers.

9 ¼ A. M.—Superintendent explained the divisions of geography and the modes of teaching it.

11 ¼ A. M.—Prof. Welch explained the laws and methods for the general management of schools.

2 P. M.—Superintendent; division, its theories and proofs.

3 P. M.—Prof. Abbott; the English verb and tense.

4 P. M.—Prof. Welch; analysis of the verb.

4 ¾ P. M.—Another spelling exercise in illustration of a method of teaching.

In the evening a crowded house listened to a lecture by the Superintendent on the "Government of Children."

Friday, 8 ½ A. M.—As this was the last day, the house was filled early and a short lecture on the properties of numbers was given, till the proper hour for opening.

8 ¾ A. M.—Devotional exercises.

9 A. M.—Superintendent; prime and composite numbers.

9 ¼ A. M.—Prof. Welch; conscious and unconscious teaching.

10 ¼ A. M.—Superintendent; physical education.

11 ¼ A. M.—Prof. Welch; essential qualifications of a good teacher—firmness and kindness. The last half of this hour was devoted to rhetoric.

2 P. M.—Prof. Abbott; verb, tense and participle.

3 P. M.—Prof. Welch; mode, tense, &c.

4 P. M.—Superintendent; theory of teaching. Seven essential conditions of all true teaching. Final address to teachers on their responsibilities and rewards.

In the evening the house was again thronged, and Prof. Fiske lectured on Meteorology, &c.

The attendance at this institute embraced over two hundred teachers, besides the large numbers of school officers and citizens in daily to witness the exercises. The utmost earnestness and anxiety was manifested by the teachers to learn all that was possible about their work, as teachers."

A table of the statistics of the institutes from 1859 to 1862, valuable for reference, may be found in the Superintendent's report for 1862. In the report for 1863 the Superintendent recommended "that teachers actually engaged in schools, be allowed to dismiss their schools and be required, if necessary, to attend the institutes held in their neighborhood." It was many years later that the law-makers of the State adopted this recommendation.

The average number of institutes held each year from 1862 to 1867 was between eleven and twelve, and the attendance is reported to have been generally satisfactory.

The first law creating the office of county superintendent of schools in Michigan, went into effect in 1867. The appearance of county superintendents immediately put a new aspect upon institute matters. These superintendents were required by the statute "to promote, by public lectures and *teachers' institutes*," and by other means, the interests and elevate the character and qualifications of the teachers in their counties. In his report for this year, the State Superintendent says, "The county superintendents have already commenced to hold county institutes which have proved very successful." During the next year he says, they (the county superintendents) propose "to hold one or more institutes in each of their respective counties." A considerable number of the first county superintendents were men of eminent ability and of long experience in educational affairs. They accepted an election to the office, not for what "there was in it" for themselves, but with the hope of doing real and valuable service to the schools of the State. Hon. John D. Pierce, the first State Superintendent, became superintendent in Washtenaw county, J. M. Ballou in Allegan, H. A. Ford in Berrien, W. S. Perry in Branch, D. B. Briggs in Macomb, Charles Hurd in Oakland, and C. M. Temple in St. Joseph. Others of equal ability and experience might be named, if space permitted.

Superintendent Ballou, at the close of his first year, reports holding two institutes in Allegan county; Superintendent Perry, three in Branch; Superintendent York, one in Genesee; Superintendent Bicknell, one at Grand Rapids, in which he was assisted by Professors Welch and Strong; Superintendent Bateman, one in Lenawee; Superintendent Covel, two in Montcalm; Superintendent Pierce, two in Washtenaw, in which he was aided by Professors Payne, Babcock, and Goodison.

Several other counties reported one or more institutes; and, in a few cases, conventions of two or three days' duration. The efforts of these county superintendents, in many cases, resulted in what might be termed a "common school revival."

From this time the institute work in the State of necessity assumed a different character and took a wider range. It was temporarily interrupted by the abolition of the county superintendency in 1875, but during the eight years of the existence of the superintendency very much excellent work was done through the State and county institutes. Space will not permit the tracing of this work in detail; only a few items can be mentioned.

In 1868 the State Superintendent reported that six institutes had been held during the year in Berrien county, and that other counties had held nearly the same number. In some counties teachers' classes had been formed, continuing from seven to ten weeks, conducted by the county superintendents, aided by competent and experienced teachers. The immediate results of these institutes and classes were reported to be very apparent in the improvement of the instruction in the schools, and in their organization and management. A series of thirteen State institutes was also held during the year, which were reported to have been very successful. From 1869 to 1876 twelve State institutes, on an average, were held each year, with a fair attendance and a good degree of interest.

A new institute law was enacted in 1877, which has continued in force ever since with only a few amendments, from time to time, such as experience has suggested. The passage of this law marked the beginning of an advance movement in institute work in the State. Hitherto the funds available for this work amounted to only eighteen hundred dollars for any one year. This sum was drawn directly from the State treasury.

By the original act of 1877 all male applicants who were examined and received certificates authorizing them to teach, were required to pay one dollar, and all female applicants fifty cents. The fees thus collected in each county were paid by the officer receiving them, to the county treasurer, to constitute an "Institute Fund" for the support of teachers' institutes.

Another provision of the act required "a registration fee of fifty cents from all persons attending an institute," who had not paid the examination fee spoken of above. This fee also went into the institute fund. A little experience proved that the requirement of a registration fee had an unfavorable influence upon the attendance at institutes, and this provision was stricken out in 1879. The provision in respect to fees for examinations was modified, at a later period, so as to require an annual fee of one dollar from all male teachers and of fifty cents from females.

As finally amended, the law requires the Superintendent of Public-Instruction to hold an institute annually in each organized county having not less than a thousand children between the ages of five and twenty years. The Superintendent may exercise his discretion as to institutes in counties having less than a thousand children, and may hold an institute for the benefit of two or more adjoining counties of this sort.

The Superintendent is also authorized to hold, once in each year, an institute for the State at large to be denominated a "State Institute"

and may expend for this purpose a sum not to exceed four hundred dollars, to be drawn from the State treasury. Only a few institutes of this kind have been held. In case the funds of any county are not sufficient to pay the expenses of the institute in that county, the Superintendent is authorized to draw a sum not exceeding sixty dollars from the State treasury to aid in defraying these expenses; but not more than eighteen hundred dollars can be drawn from the State treasury in any one year for institute purposes.

The new law went into effect too late in the season to be of much service in 1877, and only twenty county institutes were held during that year. A State institute was held at Lansing in August, 1877, with John Hancock of Ohio, E. C. Hewitt of Illinois, Robert Graham of Wisconsin, and Jonathan Piper of Chicago, as instructors. Superintendent Tarbell says, "The aim in selecting these men was to secure the best workers in four of our neighboring western States, who should bring for our use in the institutes to be held in Michigan the ripest thoughts and the best methods in this important work." During the year 1878 a State institute was held at Lansing in July, and forty-six county institutes were subsequently held in various parts of the State. In respect to the State Institute Superintendent Gower said, "It is intended, as far as practicable, to make this institute the model on which the institutes of the coming season shall be formed. Michigan men only will be employed to give instruction, and, so far as feasible, only those who expect to work in other institutes; seventeen men well known in the institute field, are engaged to give instruction, each one of whom will show how institute work upon the particular topics assigned to him should be done." Committees appointed for the purpose prepared syllabuses on each of the topics discussed, and these were printed in the form of "Outlines of Institute Work" for the use of the instructors in the county institutes. These outlines, the first published by our department of Public Instruction, are of historical interest as indicating the nature of the most approved institute work of that period. They may be found in the annual report of this department for 1878.

The next year, 1879, another State Institute was held, and fifty-six county institutes. A revised "Outline of Institute Instruction" was prepared and published, with a working program for two successive institutes of a week each, or for a single institute of two weeks. The Superintendent writes, in explaining the outlines and program, "The experience of previous years has indicated the impossibility of attempting to treat thoroughly in one week's time, all the topics which should be presented at the county institute. It was thought best, therefore, to arrange the work for a two weeks' course, thereby giving time for a more satisfactory and profitable treatment of each subject. Institute instructors are expected to make these outlines the basis of their work during the two years succeeding the date of the institute, varying from them in such particulars only as local needs of teachers may seem to render necessary."

Still another modified "Manual of Institute Work" was published in 1881, prepared, as the previous ones had been, by the instructors in a State Institute. It was said of these outlines by Superintendent Cochran, "They are the joint product of the whole institute corps of the State after three or four years of active work and experience." In 1880 sixty-five county institutes were held, but no central State Institute. The

Superintendent, in his report for that year, expresses his conviction that an advanced step might be taken in institute work. He says, "It seems to me that we are prepared to arrange for classifying the teachers at the larger institutes in the older counties, and for providing special courses for each class. Should this be done, it will be possible in a number of counties to maintain an institute for two and perhaps three weeks, and thus secure more fully the intent of the law by providing normal instruction of some kind for every teacher in the State."

It has not been found easy to classify the members of an ordinary institute strictly according to attainments or experience in teaching. Various plans have been tried, but no one has been found which gives universal satisfaction. The numbers in attendance and other conditions have to be taken into account. But from this time many of the institutes have been divided into classes or sections, and considerable actual class work has been done. In most institutes it has been found by experience best to divide the members into two or three sections for a portion of the work, and to give instruction in some topics to the whole body together.

From 1881 to 1890 the average annual number of county institutes was 66.5, the smallest number in any year being fifty-four and the largest seventy-two. The aggregate attendance varied from about 4,500 to 7,000.

In 1883 the institute Law was amended so as to allow teachers to close their schools to attend the county institute without forfeiting their wages, provided they received a certificate from the conductor, showing actual and regular attendance. Another amendment made in 1883 required the payment of the annual institute fee by teachers in cities where the Boards of Education provided for the examination of their own teachers, and also by those holding State certificates or Normal School certificates. This amendment greatly increased the institute fund in counties in which there are large cities. For some time the teachers in such cities derived no direct benefit from this fund, as they were unable, in most cases, to attend the regular county institutes; and, if they did attend such institutes, the exercises and instruction could not conveniently be adapted to their especial needs.

In his report for 1889 State Superintendent Estabrook says, "The teachers in city schools have felt that they were not receiving the same returns for their investment in the institute fund as the teachers in the rural schools. Recognizing the fact that there existed some grounds for this complaint, I proposed to the city superintendents of Detroit and Grand Rapids to arrange for an institute in each of those cities in which the instruction given should have special reference to the needs of the teachers in the city schools."

This proposition was accepted by the superintendent of the schools in Grand Rapids, and an institute of such character was held in that city in August of 1889, which was very fully attended. This was the first of a series of similar institutes which have since been held in most of the large cities of the State.

"During the year 1889 seventy-two institutes were held, with a total enrollment of 6,597. In sixty institutes the sessions continued one week; seven two weeks' institutes were held, three for three weeks, and

two for four weeks." The average annual number of regular institutes from 1891 to 1894, inclusive, was about seventy-five, the total enrollment in 1894 reaching 9,071, the largest reported in any one year in the history of the institutes.

Some recent features of institute work should receive a little consideration, as they indicate efforts at progress along certain lines. In October, 1891, State Superintendent Fitch called a meeting of institute conductors and instructors to consider the following questions (see Report for 1891): "1. The proper porportion of professional and academic work in the teachers' institute; 2. The union of two or more counties for an institute; 3. The evening lecture; 4. A salaried corps of conductors; 5. Grading the institute; 6. The county commissioner and the institute. The convention was well attended, and after free and full discussion adopted the following resolutions:

1. (*a*) That in the opinion of this convention of institute conductors and workers, the length of all institutes should be two weeks or more.

(*b*) That both academic and professional work should be done in proportion to the needs of the teachers in attendance.

(*c*) That the main work of the institute is inspiring the teachers to know and to grow.

(*d*) That the responsibility for the local management should devolve upon the efficient county commissioner.

(*e*) That in the institute program regular class work, with members of the institutes in sections, should be an important feature.

2. That it is deemed advisable, in arranging for institutes, to combine two or more counties wherever the fund of a single county will not admit of a session of at least two weeks' duration, provided the institute can be held in a place centrally located and reasonably easy of acess from all parts of the counties.

3. That evening lectures should be continued as a part of the institute work, but such service should be assigned to those only who can do credit to the profession, and give satisfaction to the institute and public.

4. That the recommendations of the paper on the salaried corps of instructors, presented by Principal Sill, be adopted as the sense of this convention, and that we are ready to coöperate with the Superintendent of Public Instruction in securing appropriate legislation to carry them into effect."

The convention also approved the plan of grading the members of institutes, and of giving the county commissioner a voice in the selection of conductors and instructors, and of putting the enrollment and other clerical work of the institute into his hands.

In his report the Superintendent treated at some length upon the propositions discussed and approved by the convention, urging especially the importance of longer institutes and of a corps of salaried conductors, affirming that the employment of such a corps would free the Superintendent "from the solicitations of those who entertain the notion that institute appointments are to be distributed for the benefit of those who desire a job rather than in the interest of the teachers who attend the institute." The proposition to create a body of salaried conductors for

the institutes, when presented to the State Teachers' Association, did not command the approval of a majority of that organization, and no further effort was made in that direction. The plan of grading the institutes met with more favor.

In his report for 1892 the Superintendent discussed the question of institutes at considerable length, and presented a course of reading and study for two grades, and also a suggestive program for use in the institutes. Among other things he said, "The greatest educational need of the hour is a better system of professional training for the teachers of our common schools. * * * With the limited capacity of our State Normal School and the limited means of the great mass of teachers to attend this school, it is apparent to any one that upon the teachers' institute must devolve the work of fitting the great majority of teachers for their important vocation. Therefore, accepting the institute as the only available means of working out a better system of professional training for the mass of teachers of the district schools, the problem resolves itself into this: How can we improve the institute and make it adequate to this great work? There can be no question, I think, that the institute demands heroic treatment."

While freely conceding that the institute had accomplished much good in the past, he expressed his conviction that, in its present form, it had "largely outlived its usefulness" and was in fact an "antiquated machine" which could not, by any amount of tinkering, be made to do efficient service under existing conditions. A radical and thorough reconstruction was, in his opinion, necessary. The same view appeared to be entertained at that time by many other intelligent and earnest friends of educational progress. The judgment of teachers generally, however, seems still to favor the continuance of the institute in a form not essentially different from the present.

In order to ascertain the estimation in which institutes and institute work are held by those who attend them, the Superintendent, in 1894, sent a circular of inquiry to all persons who were present at every session of any of the county institutes during that year. In reporting the result of his inquiry, he says, "The circular asked as to the character and value of the work done by conductors and instructors, stating that the signatures were called for merely to attest the genuineness of the reply, and that the answer would be treated as confidential, the names of the respondents being removed from the replies when filed in this office. If any doubt existed as to the value of the institute or as to the esteem in which it is held by the best and most conscientious of our teachers, these replies would remove the doubt at once and encourage all workers to renewed energy in the helpful work. The especial value of the testimony is that it comes without reservation or restriction. The testimony is so unanimous in favor of the institutes, and the value received is so clearly set forth by almost every one of the hundreds of replies, that arrangements for their continuance are made with renewed faith in their usefulness."

In addition to the regular county institutes, the State Superintendent, during the last two years has held a considerable number of short conventions known as "Inspiration Institutes." These have usually opened on Thursday evening and continued until noon of the Saturday following. The main object of these meetings, as the name indicates, is to

arouse interest and excite enthusiasm among the teachers and citizens in the localities where they are held, while, at the same time, much valuable instruction is given.

The progress made in the character of institute work during the period of forty years may be estimated by comparing the matter and manner of instruction in the institute of today with the instruction and the methods employed in the institutes first held in the State, and we here append a typical program of a modern institute:

BERRIEN COUNTY INSPIRATION INSTITUTE,

At Benton Harbor, Mich., January 23-25, 1896, beginning Thursday evening.

Conductor—SUPT. HENRY R. PATTENGILL.

Instructors and lecturers—Pres. A. G. Slocum, Kalamazoo College; Prin. R. G. Boone, Michigan State Normal School; Prof. Arnold Tompkins, Illinois State University; Prof. C. T. McFarlane, Michigan State Normal School; Miss Ada V. Harris, M. S. N. S.

Local committee—Comm'r E. P. Clarke, St. Joseph; Supt. E. A. Wilson, Benton Harbor; Supt. G. W. Loomis, St. Joseph.

PROGRAM.

(Standard time.)

Thursday evening, 7:30 o'clock.

Music.
Prayer—Rev. W. P. French.
Music—Quartet.
Address—"The Educational Triumvirate—pupil, patron, teacher," Pres. A. G. Slocum.
Music—Solo by Mrs. J. N. Reed.
Remarks—"Intelligent Patriotism," Supt. H. R. Pattengill.
"America"—Everybody.

Friday morning.

8:30 Opening exercises.
8:45 "The Big Four," Mr. Pattengill.
9:15 Singing or Calisthenics.
9:20 "Hints to Teachers," Mr. Slocum.
9:50 Physical culture, High school, Singing.
9:55 "The True Subject of Education," Mr. Boone.
10:25 Recess.
10:40 "The Old and New Geography," Mr. McFarlane.
11:10 "School Management," Mr. Tompkins.
11:40 Notices.
11:45 Nooning.

Friday afternoon.

1:30 Opening exercises.
1:40 Lessons in Primary Work, Reading, Miss Harris.
2:15 Music—Benton Harbor High School Choir.
2:20 "School Management," Mr. Tompkins.
2:50 Recess.
3:00 "The Means of Education," Mr. Boone.
3:30 Sec. A. Blackboard Sketching—first principles and practice, Mr. McFarlane. Sec. B. Primary Work, Correlation of Studies, Miss Harris.
4:00 "Hints from Squints," Mr. Pattengill.
4:25 Notices.
4:30 Closing.

Friday evening, 8 o'clock.

Music—Duet.
Prayer—Rev. Geo. B. Simons.
Music—Quartet.
Address—"Education," Prof. Arnold Tompkins.
"Red, White, and Blue," Everybody.

Saturday morning.

8:00 Sec. A. Primary Work—Correlated Lessons, Miss Harris. Sec. B. Blackboard Sketching applied to objects, Mr. McFarlane.
8:45 Opening of general session, Music, St. Joseph High School.
9:00 "The Motive in Education," Mr. Boone.
9:30 Physical Culture, Fifth Grade, Music.
9:35 The Map, its use and abuse, Mr. McFarlane.
10:10 Recess.
10:25 Primary work—Concentration, Miss Harris.
11:00 "Elements of Growth," Mr. Boone.
11:40 Notices.
11:45 Nooning.

Saturday afternoon.

1:30	Opening, Music, Benton Harbor High School Choir.	2:10	"Just One More Word," Miss Harris.
		2:25	"Finally," Mr. Boone.
1:40	Blackboard Sketching applied to geography, Mr. McFarlane.	2:40	"Round up," Mr. Pattengill.
		3:00	"God be with you till we meet again."

This will be a red letter day for Berrien county. Let every teacher be present at all the sessions, if possible. School boards should close the schools Friday and insist on teachers being present at the institute. The benefit derived goes back immediately to the schools and thus to the children. A teacher with inspiration can do more work in one week than the same teacher without inspiration can do in a month. School officers and patrons are earnestly invited to attend all of the sessions. Teachers from adjacent counties are very welcome. All sessions will be held in the Methodist church, Pipestone street. Meals served in the basement of church. Lodging and breakfast for 25 cents.

In May, 1895, an enthusiastic conference of institute workers was held at Lansing upon the invitation of Superintendent Pattengill, at which plans and outlines of institute work were thoroughly discussed, and the following was adopted as a

Summary of Opinions.

Sections: "The conference agreed that the institute ought to be divided into sections, and that for the best work, as small a number as fifty may be divided. Two sections are generally sufficient; but if the institute enrolls 125 to 200 or upwards, three sections are needed. The institute should start with the divisions made and these should be maintained throughout. The practice is not a good one to allow teachers to take work in different sections, though there are cases where the judgment and good sense of the conductor and commissioner will allow some liberty.

Teaching Force: Two strong, competent instructors can ordinarily do the work and should be expected to do it, except in institutes large enough to require three sections. The sentiment prevailed that conductors and instructors should take time to plan and prepare in advance the work to be done; and, in case one cannot so prepare, he should decline the appointment. In some cases specialists have done excellent work and have increased the interest and efficiency of the institute. The specialist must not disturb the regular order of work, and it is usually important that he be a most competent instructor.

Basis of Classification: The basis of division should take into account the person's scholarship, professional training, and ability to master work. Length of time one has taught is not a safe basis of classification; but this, in connection with grade of certificate held and the opinion of the commissioner, is probably as good a basis as can be found.

The Work to be Done: The suggestion that teachers be requested to hand in statements of what work they would like during the institute, and that the instructors should be guided by these suggestions in making a course, was not favorably received. The majority favored having a topical outline of work prepared and announced beforehand. This work should be followed somewhat rigidly. The plan of individual day lessons made in advance by some copying press, and these lessons submitted to teachers from day to day, works well and gives definiteness to instruction.

Method of Work: The class plan of instruction gives good results, and it is to be used rather than the lecture plan. There are cases where the lecture plan may be used with profit, but such cases constitute but a small part of the whole. Only the most skillful and experienced instructors can use this plan successfully. All agreed that academical and professional work should be combined.

The County Commissioner: The county commissioner, having full knowledge of local conditions and the needs of teachers, should always be freely consulted in making institute plans; and the commissioner should heartily respond in giving conductor and instructor needed assistance and coöperation.

General Management: The institute should open promptly at the hour announced, such preliminary arrangements having been made by commissioner and conductor that the teachers come in on time for a day's work the first day. Teachers should remain throughout the institute. The conductor should push the work from first to last with vigor and energy."

This summary may, perhaps, be regarded as a tolerably fair indication of the average sentiment of teachers in the State at this time in relation to the management of institutes.

REPORTS

OF

COUNTY COMMISSIONERS OF SCHOOLS

FOR THE

SCHOOL YEAR

1894-95.

REPORTS OF COUNTY COMMISSIONERS OF SCHOOLS.

ALGER COUNTY.

JULIA O'KEEFFE, *Commissioner.*

INSTITUTES.

The first teachers' institute for Alger county was held last October at Au Train. The attendance of teachers was most satisfactory; and the able conductor, Mr. H. C. Rankin, did such good work that it proved to be of marked benefit to all who attended.

LIBRARIES.

Some of our schools have begun libraries, and all through the county much interest is shown in regard to the matter.

GENERAL.

The people of this county take a deep interest in educational matters. The schools are well supplied with apparatus, the system of free text-books is in operation in every township except one, and with but two or three exceptions, the schools have uniformity of text-books throughout the county. On the whole, the schools have made very satisfactory progress during the past year.

Au Train, Mich.

ALLEGAN COUNTY.

J. W. HUMPHREY, *Commissioner.*

EXAMINATIONS.

During the past year we have held six public examinations, and, owing to the divided condition of our county, more would have been better. Teachers from the lake shore townships find it a difficult task to attend examinations at the county seat. The new law allowing examinations

for second grade in other places, will be of great convenience to the teachers in the western part of the county. The constant aim of the board has been to secure the very best teaching force possible, for the success of our schools must depend very largely upon those who teach.

TEACHERS' MEETINGS.

The county has two very prosperous educational clubs, one in the eastern part of the county and the other in the western. The attendance at their meetings has been good, and teachers and patrons have taken an active interest in the subjects presented. We are pleased to state that there is an increased attendance of patrons from localities where these meetings have been held.

At the opening of the school year a definite plan of work was agreed to and printed in the County Manual, and proved to be fairly successful, the greatest drawback being the change in attendance, as the meetings were held in different parts of the county. We continued the work of local or township meetings begun last year, and feel warranted in their continuance for the ensuing year.

The "Inspiration Institute" held in Allegan, March 20-23, has received the highest praise by both teachers and patrons. "I appreciate the grandeur of my calling as never before," "It gave me a new inspiration for my work," "It was the best I ever attended," are some of the encomiums passed upon it. The one to be held on the lake shore during the fall is looked forward to with a great deal of interest.

PATRIOTISM.

"Old Glory" waves over most of our schoolhouses and finds a place in the decoration of nearly all. Flag raising has been a very common occurrence in our county during the past year. As far as possible I have attended these exercises and found them to be not only an excellent means of teaching lessons of patriotism, but also of increasing the interest of patrons in the work of our schools. We hope in the coming year to be able to say, "The new law has been complied with without taking advantage of its legal requirements."

SPECIAL DAYS.

Nearly all of our schools took part in Memorial Day exercises, and many of them have held exercises commemorating the birthdays of some of our most distinguished American authors and statesmen. These exercises have been well attended by the public.

GENERAL.

Taken as a whole, the year's work has been quite satisfactory, and we hope, with our enthusiastic and earnest corps of teachers, to see continued improvement during the coming year. In closing, I wish to acknowledge my obligations to the other members of the board, Mrs. D. V. Pursel and Benjamin Neerken, for their valuable aid and constant interest in the welfare of our schools.

Wayland, Mich.

ALPENA COUNTY.

JAS. A. CASE, *Commissioner.*

EXAMINATIONS.

Four examinations were held during the year. On an average about one-half the candidates were successful. No specials are granted. The supply of teachers exceeds the demand.

PATRIOTISM.

Two-thirds of the schools are supplied with flags and special days are duly observed.

INSTITUTES.

The last institute was well attended by the teachers of country schools. City teachers took little interest in it.

LIBRARIES.

A few of the schools have libraries, but the most of them are yet to be supplied.

EXHIBITS.

No school exhibit has ever been made at the county fair.

GENERAL.

The schools of this county will, I think, compare favorably with the schools of the adjoining counties. Some improvement has been made during the past year in the appearance of school buildings and school grounds, but many of them show the effect of neglect. A serious drawback to many of the schools of this county is failure to provide for the prompt payment of teachers' wages.

Alpena, Mich.

ANTRIM COUNTY.

H. C. LOTT, *Commissioner.*

EXAMINATIONS.

In the examinations the teachers have shown themselves better prepared, and consequently there were fewer failures. Interest in general reading renders them ready on current topics.

TEACHERS' MEETINGS.

The county association held two meetings. They were well attended and the papers and discussions profitable. The institute was one of the best, and the influence of the work done has been felt throughout the year.

LIBRARIES.

The necessity of placing good literature in the hands of the boys and girls has been thoroughly agitated, and, as a result, several of the schools have made a good beginning for a library and many others are working for this object.

PATRIOTISM.

Along with the library, an effort has been made to provide a flag for each school. Many of the schools have secured the flag, and its influence in training for loyal American citizenship cannot be measured.

EXHIBITS.

Exhibits of school work have been made at the county fair for the past three years, and the schools are working along this line for next fall.

GENERAL.

There is much reason for encouragement as a result of the work done in the schools of the county during the past year. The sentiment in favor of more efficient work is growing among teachers and patrons. The teachers are striving to fit themselves for better work by attending associations and institutes, and by doing the reading circle work and other systematic reading. The patrons generally stand ready to assist the teacher by furnishing the school with needed apparatus. All this is a matter of growth, but it points in the right direction.

Bellaire, Mich.

ARENAC COUNTY.

JULIA A. INGLIS, *Commissioner.*

EXAMINATIONS.

Teachers examinations in this county are well attended. There are few applicants for first and second grades. Third grade work is more than supplied with teachers, also with applicants.

PATRIOTISM.

Patriotism is taught in different ways by a great majority of teachers. A good deal of work done is by singing, using songs contained in our much-prized "Knapsack." Flag days are observed by all schools having flags, and by some which have not, those giving a short time to exercises in reference to historical events.

INSTITUTES.

Institutes have been very successful in the past, enrolling a large number, considering the number of teachers employed.

LIBRARIES.

Some of the schools are making special efforts towards establishing a library, some having a fair start.

APPARATUS.

Schools, as a general matter, are well equipped with maps, charts, globes, and other essentials for conducting the same.

EXHIBITS.

Schools turned out to the county fair last year, some of them driving a long distance. I do not know if we can arouse the enthusiasm this year or not, as there was some misunderstanding in regard to accommodations. Horse racing was seemingly more interesting than children or their work.

GENERAL.

The schools throughout the county have shown a marked improvement during the past year. Most schools are graded by the State Manual, though some schools are loth to keep the grade work complete. We hope to have them all working under this system this coming year.

Some of the schools are very small, others crowded. One especially patronized by one family, teacher going within five miles by rail, then donning rubber boots and walking (or rather wading) rest of the way.

The great difficulty here in some schools is financial embarrassment. Some boards lacking business management to provide for schools, many teachers having to wait a year or more for pay. This might be remedied in some cases, but is difficult to arrange in others on account of inability to collect taxes when levied.

The village schools are making marked progress. Commencement, graduating, and promotion exercises, where a few years ago we had the old-fashioned last day of school. These schools graduate pupils compe-

tent to write a third grade certificate; in fact, that is the requirement of one school. While doubting the benefit of that as a necessity, yet it may tend to more perfect mastery of the subject in hand; and, after all, the pupil who can pass a third grade now has a fair start in educational lines.

We wish during the ensuing months to place the State Manual and Course of Study in the hands of every school board in the county, if possible. It is easy enough to reach the teachers here, but difficult to meet the district boards; school is usually the last business attended to. I do not understand just why this is so, but it is a fact. If we can in the future create an interest among the patrons, then we will think that educational work is progressing. During the past two years we have been trying to arouse the teachers; the next will find us working for the same enthusiasm among the patrons.

Sterling, Mich.

BARAGA COUNTY.

M. J. McKANNA, *Commissioner.*

EXAMINATIONS.

During the past year three public examinations for teachers were held in this county. The applicants on the whole were much better prepared, and the per cent of failures was much lower than last year.

TEACHERS' MEETINGS.

The Baraga County Teachers' Association held a meeting at L'Anse, Oct. 26, 1894. Nearly every teacher in the county was present, and it proved to be one of the most successful and enthusiastic meetings ever held in this county. Welch's Classification Register was introduced and explained, and one given to every teacher of a district school. I had the teachers report to me three times during the year on the blanks provided for that purpose, and at the close of the year prepared questions for final examination for promotion. I believe the system will be a great help in the inspection and grading of the schools. At the Teachers' Association mentioned above, a Teachers' Reading Circle was organized, and as the schools of the county were somewhat scattered, we concluded to let the teachers of each township meet together. A manager was appointed for each township, who was to report to me, from time to time, the progress of the work. Meetings were held in most of the townships once a week, and many of the teachers completed the work in a satisfactory manner.

PATRIOTISM.

A large number of our district schools are not yet supplied with flags, and I am glad there is now a law making this compulsory on the district board.

SPECIAL DAYS.

Special days are generally observed by having some appropriate exercises in the schools. A great many of the school grounds in the smaller districts are not enclosed, and this makes it impracticable for planting trees or beautifying the school grounds. On Arbor Day we planted, in the school grounds at Baraga, over twenty trees, and all seem to be thriving well. Decoration Day was observed by the teachers and pupils of the township, a large number of citizens forming in procession and driving to the grave yard, about three miles distant, in vehicles appropriately decorated for the occasion, to decorate the soldiers' graves.

LIBRARIES.

Very few of the district schools are provided with libraries, but I have reason to believe that many districts will purchase them next year.

GENERAL.

All the schools of this county are now organized under the township unit system, and it seems to be giving general satisfaction. New school districts are established whenever it becomes necessary to do so, two being established during the past year. I believe that our schools are advancing as rapidly as can be expected from the undeveloped condition of the county.

Baraga, Mich.

BAY COUNTY.

CHAS. W. HITCHCOCK, *Commissioner.*

EXAMINATIONS.

We have held four examinations this year at the county court house, two regulars and two specials. Specials were held the last Friday in September and April. In conducting these examinations we have followed, as far as possible, your suggestions as to program for conducting them. In my opinion, the April examination could be dispensed with. However, I believe that recent legislation has changed the time of holding the special examinations.

TEACHERS' MEETINGS.

We held fifteen township teachers' meetings this year. The average attendance of teachers to each was seven. Some were attended by quite a number of patrons and others by school officers. We made a thorough

study of the State Manual and discussed an assigned lesson in the Reading Circle books. I find that this is about the only safe plan a commissioner can follow, for so many of our teachers are inexperienced, do not know much about the course of study, and care less to know much about it. We aimed to make these meetings as helpful to the teachers as possible. School government, methods, etc., etc., were given due attention. These meetings have been productive of very good results. We held no institute last year, but it was no fault of mine. Have heretofore written you concerning this matter.

PATRIOTISM.

This year I helped to raise thirteen flags. The schools, as a rule, observe such days as Arbor Day, Decoration Day, Washington's Birthday, etc. Our teachers generally have a patriotic spirit. You will remember my writing you in my last year's report, of a French district turning out en masse on Arbor Day and grading the ground, setting out trees, etc. This year, in the same district, they turned out in much larger numbers on a cold, snowy day, and erected the nicest flagpole in this county, hoisting a $10 flag.

LIBRARIES.

We have put in eight $5 and $10 libraries. Through our spelling matches (we held fifteen in all) almost every district purchased a set of geographical readers, edited by Larkin Dunton, as the nucleus of a library.

EXHIBITS.

We had no county fair or we would have had a county exhibit. We had an exhibit ready for the institute. Our schools were well represented at the State exhibit at Lansing.

GENERAL.

Recent legislation will, I think, remedy a good many evils in the schools of this county. The questions for the pupils' examination should, I think, be sent out a little earlier, and the questions on physiology and civil government be made a little easier. In the high schools of this county the above mentioned subjects are begun from the books. Eighth grade pupils in the cities have these subjects orally. Shall be glad to see the institute workers do some class-room work.

Bay City, Mich.

BENZIE COUNTY.

Z. F. McGEE, *Commissioner.*

EXAMINATIONS.

The difficult problem, how to license good teachers and reject the poor, is yet to be solved. The legislative acts regulating examinations are to be commended, but the examination is only a test of knowledge, sometimes hardly that, and does not indicate the power or skill a teacher may have. Some of the poorest teachers have been those who passed in excellent papers and obtained good standings. It has been a step in the right direction to raise the limit of age that teachers may have more mature judgment. Still, would it not be best to require some professional training, even though it be no more than the requirement to read one or more standard works on teaching? For many of our younger teachers come to their work with little or no idea of schoolroom work. The different standards of marking used by different examining boards are often fruitful causes of dissatisfaction and might, with good results, be limited by uniform rules.

PATRIOTISM.

There has been a general expression of satisfaction among the teachers (most of whom have been quite enthusiastic in teaching patriotism) that the flag of our country is to have its place above each schoolhouse. Sixteen schools have already purchased flags, and several others have taken steps to secure them.

SPECIAL DAYS.

The village schools observe the special days with appropriate exercises quite generally, and many of our district schools are getting the spirit and are moving on this line.

TEACHERS' MEETINGS.

Removed from the many advantages that are enjoyed by the teachers in the more densely populated parts of the State, our teachers take great interest and receive much benefit from the institutes; more from the spirit and enthusiasm awakened, and the associations formed, than from the knowledge gained. Together with the County Teachers' Association, it has been a very important aid.

LIBRARIES.

It is to be regretted that not more libraries have been established in our schools. The fault is more in the fact that so many of our teachers have read so little of good books and do not understand the real need to be supplied in a school library, and cannot use good libraries to advantage when they have them.

EXHIBITS.

The display at the county fair has not been as great a success as it may in time become, with more experience. Some fine work was displayed last fall, but we expect to see an improvement from year to year.

GENERAL.

In retrospect, I am pleased to note a general improvement in the character of the teachers and the grade of work done during the year. The work is becoming more uniform as a result of the use of the graded system of registers, with which each school is supplied.

Benzonia, Mich.

BERRIEN COUNTY.

ERNEST P. CLARKE, *Commissioner.*

EXAMINATIONS.

Six public examinations were held during the year. About fifty per cent of the applicants for certificates were successful, of whom twenty-two had never held certificates. This percentage is higher than that of last year, because, we believe, the standard of scholarship has been raised materially, and the result is more efficient work in the schoolroom. Better schoralship means not only better instruction, but better school government. Teachers realize that, to hold their positions, they must study, grow, and keep in advance of their work; and the number who are taking special courses in high schools and colleges, and who attend summer normals and institutes, is steadily increasing. For the last two examinations, applicants for third grade certificates were allowed one and one-half days in which to complete the examination. The change proves very satisfactory to both applicants and examiners.

TEACHERS' MEETINGS.

Besides the meetings of the county association, many township teachers' and patrons' meetings were held, which were always well attended by both teachers and patrons; in fact, these meetings created unbounded enthusiasm and did much to establish a better understanding between teachers and patrons and to create a healthier school sentiment among the people. One township meeting called out over five hundred people, who took a lively interest in the various exercises and discussions. These institutes, rightly conducted, become powerful educational factors, and will lead the people to give our common schools better and more liberal support. We shall have these meetings in every township next year.

The State institute at Niles was a glowing success, and all who attended resolved to be on hand next year. The work in English was a new departure, being confined to the reading of English masterpieces and composition work, which we consider a move in the right direction. Dr. Edgecumbe's earnestness and enthusiasm proved contagious, and teachers felt well repaid for their attendance. We believe such institutes pay. But the event of the year was the Inspiration Institute at St. Joseph. With our ready, hustling State Superintendent as conductor, and Col. Parker, Dr. Hinsdale, and Mrs. Thomsen, as instructors, the institute proved an inspiration indeed to our teachers. Over three hundred teachers and one hundred patrons were in attendance all the time. The results are marked improvement in the spirit and method of teachers, who were stimulated to make better preparation for their work and to continue permanently in the profession. There is a general demand for a similar institute next year.

SPECIAL DAYS.

Christmas and Washington exercises were held in nearly all schools. Other days were observed by a few schools, but better work along this line should be done.

PATRIOTISM.

Ninety-eight of the one hundred and fifty schools have flags which, in nearly every instance, were purchased with money raised by teachers and pupils. This feeling of ownership lends added value to the flag in the eyes of pupils. Framed portraits of Washington and Lincoln have found their way to heretofore bare walls, and as silent teachers instil lessons in devotion to duty and loyalty to country. On Decoration Day the teachers and pupils of many schools fell in line behind the old veterans, marched to the cemeteries and tenderly laid their tributes of flowers on the graves of our "patriot dead." No better lesson in patriotism can be taught to children than this. May the beautiful custom continue.

LIBRARIES.

No educational movement deserves stronger support than this movement to supply good libraries for our common schools. Berrien county started seventy-eight new district school libraries this year. The money for the purchase of books was raised by teachers and pupils, and school boards are now supplying bookcases. Three district schools raised over $40 library money; seven, over $19; twenty-five, over $10; twenty-six, over $5. About two thousand volumes were purchased, and all the books were selected from the county graded course of reading, nearly all the books of which are on the list recommended by Mr. Pattengill. Many of the schools purchased supplementary reading for each grade. The teacher is librarian, and sees that the reading of pupils is systematic.

EXHIBITS.

Next September, for the first time in the history of the county, we will have a school exhibit at the county fair. Most of the exhibits have been prepared, and the premiums, which consist of school apparatus and

decorations, have been selected. A strong effort will be put forth to make school day at the fair a grand success.

GENERAL.

We believe the spirit of progress in school affairs is rife in the county. We see marks of this in the new schoolhouses that have been built; in the whitening and decoration of schoolroom walls; in the new apparatus provided; in the larger number of schools that employ teachers for the year; in the attendance at teachers' and patrons' meetings; in the support and encouragement of grading district schools. Instead of being looked upon as an experiment of doubtful value, grading is now considered a permanent and necessary improvement. Eighth grade examinations were strong factors in creating an interest favorable to grading. Sixty-two pupils received diplomas during the year, and nearly all will take higher courses in high schools or colleges. The required average has been raised to 80 per cent, the minimum standing to 65 per cent, and results are much more satisfactory this year.

We realize that much work is needed along all lines to place all our schools in a satisfactory condition, but still we believe the school year, on the whole, has been a very prosperous one.

St. Joseph, Mich.

BRANCH COUNTY.

D. A. TELLER, *Commissioner.*

EXAMINATIONS.

Five public teachers' examinations have been held during the year. The enrollment at these examinations has not been as large as last year; but applicants have, as a rule, shown a fresher and more accurate knowledge of subjects. I think the examinations, as given at the present time, are none too rigid, but I think the teacher who once passes, especially the second or first grade test, and shows interest in and ability for the work, should be given a longer lease of professional life before again being called upon for an examination.

TEACHERS' MEETINGS.

Twelve meetings of this kind have been held during the year, with good interest manifest at all both by patrons and teachers. I consider these meetings by far the best means I have yet used to promote general educational interest among all classes. No commissioner can afford to neglect the local meetings.

I believe in the value of the State institute. The last one held in this county was one of the most successful I have ever known. The one to

be held here in August had, in my opinion, better not be held. We are to have a six weeks' summer school here, affording ample opportunity for those who wish to put in their time to do so; and it seems to me that the money now on hand had better have been used either for an Inspiration Institute later in the fall or for a longer session of the regular institute next season.

PATRIOTISM.

The flag agitation and patriotic enthusiasm of the State Superintendent are beginning to show results, even in Branch schools, through the efforts, usually, of wideawake teachers. We are being supplied with flags, which are quite frequently made use of to teach a lesson of patriotism and loyalty to the whole district. Now, through the operation of the Janes' law, I think all our schools will soon be floating the Stars and Stripes.

SPECIAL DAYS.

This feature of the work has not received the attention which undoubtedly it merits; and yet many districts observed, with very appropriate and interesting exercises, Washington's Birthday, Arbor Day, Decoration Day and others. There is a growing sentiment in favor of this work.

LIBRARIES.

Not much has been done for district libraries in this county, though some of our teachers have made very gratifying efforts along this line. There being several other matters needing special attention, I have thought it best not to get too many irons in the fire and have made no special effort for libraries, except in particular places where I saw they were ready to take up the work. I think the time has come, however, when the movement may be pushed.

EXHIBITS.

For the past two years we have had a school exhibit at our county fair, the one last fall being very commendable in many ways and receiving a great deal of attention from the public. Both the exhibits were prepared under unfavorable conditions and upon short notice, but I think there is no doubt of their value in the county work. The mere fact of their bringing school work to the attention of the public, entitles the fair exhibit to favorable consideration.

GENERAL.

On the whole, I think the school work in Branch county is in a prosperous condition. Little definite and permanent progress can be made, however, until the people of the county see fit to give some person the commissionership for a longer period than two years.

Coldwater, Mich.

CALHOUN COUNTY.

A. G. RANDALL, *Commissioner.*

In addition to the statistical report for the year ending June 30, 1895, I desire to submit the following touching the work of the year in this county. Agreeable to the suggestions of the department, I will arrange my remarks under the heads suggested.

EXAMINATIONS.

During the year just closed we have held six public examinations, giving in each case one and one-half days to the work, except in the case of regular examinations, where two days have been given. It is very questionable whether there is any advantage gained by giving more time to the examinations. The number of failures is just as great as under the old plan, where the work was confined to one day. It would seem best to shorten the questions to the extent that a candidate likely to pass the test can handle the work in one day. The ability of an individual is tested more by the character of the questions that he can answer than by the number.

PATRIOTISM.

Our teachers have given more attention than ever before to this important subject. Commencing the year we had, perhaps, thirty school flags in the county; now we have nearly one hundred. With the disposition to purchase flags has come an inclination to study more thoughtfully the history of our country and the significance of the flag itself. Many public flag raisings have been held, attended by large numbers of citizens, who have thus been brought into closer touch with the schools.

SPECIAL DAYS.

Teachers have carried out the suggestions of the Commissioner and sought to make much of special days, such as poet's days, birthdays of eminent men, Lincoln's Birthday, Washington's Birthday, Arbor Day, and Decoration Day. Arbor Day, especially, was made the occasion for setting trees and flowers, and a general cleaning of the school premises.

LIBRARIES.

There is a general awakening in the country districts upon the subject of school libraries. Many teachers have established libraries by holding entertainments, socials, and by general subscription. The work is mostly in its infancy, but it is confidently expected that, during the coming year, four-fifths of the schools in the county will take means to establish a library.

CASS COUNTY.

C. E. CONE, *Commissioner.*

EXAMINATIONS.

On comparison of this year's statistical report with that of last year, it will be observed that there were thirty-eight less applications for certificates, that there were fourteen less third grade certificates granted, and that there were fourteen more second grade certificates granted this year than last. Of the forty applicants who had no experience in teaching, to whom certificates were granted, a very large majority were graduates of our high schools. Fourteen of the district school graduates were successful candidates for certificates. The change made in required average standings for second and first grade certificates was for the purpose of inducing a larger number to write for these higher grades. At the same time we raised the minimum standing for third grade five points. We are working toward a higher standard of teachers by encouraging those already in the work to look toward a higher ideal and by exercising great care in the selection of new material.

TEACHERS' MEETINGS.

An attempt was made at the beginning of the year to organize township or district associations, which was only a partial success. Three reading circles were organized and held monthly meetings for a greater part of the year. The other meetings held were well attended and helpful. Better results are hoped for in this part of the work the coming year.

The institute conducted by Prof. George, assisted by Prof. Graves, was very helpful. The gentlemen were full of enthusiasm and knowledge of their subjects. While the attendance was very good, it was not as regular as it should have been for best results.

LIBRARIES.

By the very commendable efforts of teachers and pupils, several district libraries have been established during the year. A good start has been made, and it is expected that a large majority of our schools will possess a good working library by the close of next year.

PATRIOTISM.

Considerable attention has been given the teaching of patriotism and the observance of special days.

GENERAL.

Altogether, educational affairs are in a healthy condition, and a steady growth of improvement is confidently looked for.

Cassopolis, Mich.

tent to write a third grade certificate; in fact, that is the requirement of one school. While doubting the benefit of that as a necessity, yet it may tend to more perfect mastery of the subject in hand; and, after all, the pupil who can pass a third grade now has a fair start in educational lines.

We wish during the ensuing months to place the State Manual and Course of Study in the hands of every school board in the county, if possible. It is easy enough to reach the teachers here, but difficult to meet the district boards; school is usually the last business attended to. I do not understand just why this is so, but it is a fact. If we can in the future create an interest among the patrons, then we will think that educational work is progressing. During the past two years we have been trying to arouse the teachers; the next will find us working for the same enthusiasm among the patrons.

Sterling, Mich.

BARAGA COUNTY.

M. J. McKANNA, *Commissioner.*

EXAMINATIONS.

During the past year three public examinations for teachers were held in this county. The applicants on the whole were much better prepared, and the per cent of failures was much lower than last year.

TEACHERS' MEETINGS.

The Baraga County Teachers' Association held a meeting at L'Anse, Oct. 26, 1894. Nearly every teacher in the county was present, and it proved to be one of the most successful and enthusiastic meetings ever held in this county. Welch's Classification Register was introduced and explained, and one given to every teacher of a district school. I had the teachers report to me three times during the year on the blanks provided for that purpose, and at the close of the year prepared questions for final examination for promotion. I believe the system will be a great help in the inspection and grading of the schools. At the Teachers' Association mentioned above, a Teachers' Reading Circle was organized, and as the schools of the county were somewhat scattered, we concluded to let the teachers of each township meet together. A manager was appointed for each township, who was to report to me, from time to time, the progress of the work. Meetings were held in most of the townships once a week, and many of the teachers completed the work in a satisfactory manner.

PATRIOTISM.

A large number of our district schools are not yet supplied with flags, and I am glad there is now a law making this compulsory on the district board.

SPECIAL DAYS.

Special days are generally observed by having some appropriate exercises in the schools. A great many of the school grounds in the smaller districts are not enclosed, and this makes it impracticable for planting trees or beautifying the school grounds. On Arbor Day we planted, in the school grounds at Baraga, over twenty trees, and all seem to be thriving well. Decoration Day was observed by the teachers and pupils of the township, a large number of citizens forming in procession and driving to the grave yard, about three miles distant, in vehicles appropriately decorated for the occasion, to decorate the soldiers' graves.

LIBRARIES.

Very few of the district schools are provided with libraries, but I have reason to believe that many districts will purchase them next year.

GENERAL.

All the schools of this county are now organized under the township unit system, and it seems to be giving general satisfaction. New school districts are established whenever it becomes necessary to do so, two being established during the past year. I believe that our schools are advancing as rapidly as can be expected from the undeveloped condition of the county.

Baraga, Mich.

BAY COUNTY.

CHAS. W. HITCHCOCK, *Commissioner.*

EXAMINATIONS.

We have held four examinations this year at the county court house, two regulars and two specials. Specials were held the last Friday in September and April. In conducting these examinations we have followed, as far as possible, your suggestions as to program for conducting them. In my opinion, the April examination could be dispensed with. However, I believe that recent legislation has changed the time of holding the special examinations.

TEACHERS' MEETINGS.

We held fifteen township teachers' meetings this year. The average attendance of teachers to each was seven. Some were attended by quite a number of patrons and others by school officers. We made a thorough

CHARLEVOIX COUNTY.

FRANK H. RANNEY, *Commissioner.*

EXAMINATIONS.

We have held six public examinations the past year, and examined one hundred and thirty-five applicants, of which sixty per cent were successful. The previous year fifty-two per cent of the applicants obtained certificates. This increase is due, I think, to the better preparation of the candidates.

TEACHERS' MEETINGS.

Six local Teachers' Meetings, besides the Reading Circle meetings, have been held during the year. These meetings were well attended and a decided success. The attendance at the institutes has increased each year for several years. The last two held in this county have been exceptionally good ones, and the results may be seen in the better methods of the teachers.

SPECIAL DAYS.

Most teachers have special exercises in observance of the birthdays of noted authors and statesmen. These are made interesting by inviting the district officers and patrons to be present. By a generous display of "Old Glory" and singing some of the national songs, the children are incidentally taught patriotism.

GENERAL.

I have visited sixty-six of the seventy-three schools under my charge, and think they have materially improved in the last year. One thing that is a source of gratification to me, is the increased interest taken in the schools and school work by the general public. This is shown by the interest taken in the meetings of our county association, township rallies, institutes, and frequent visits to the schools. Many of the weak teachers have been weeded out, and our force will compare favorably with those of any county in the State.

East Jordan, Mich.

CHIPPEWA COUNTY.

P. T. ROWE, *Commissioner.*

In compliance with the request of the Department for a "separate manuscript report," in addition to the statistical one, I respectfully submit the following:

I have been able to visit all the schools in the county during the year, with the exception of six, and have found them in a higher state of

efficiency than ever they have been before. The teaching staff has improved, the attendance is larger, the interest on the part of school officers greater, and the equipment in each school for better work has increased.

LIBRARIES.

In many districts libraries have been established, and in nearly all the rest steps have been taken towards their establishment.

EXAMINATIONS.

Applicants for examination have decreased in number; but those who have succeeded in passing are higher in qualification, the result of the high percentage required, close marking, and the professional abilities, all taken into consideration.

PATRIOTISM.

Owing to the energy of the Department in suggesting that every school have a flag and patriotism taught constantly by this same, a wave of patriotic enthusiasm has swept over all our schools and teachers.

Sault Ste. Marie, Mich.

CLARE COUNTY.

H. M. ROYS, *Commissioner.*

Along with my statistical report, I send you a brief review of the year's work, and the general condition of the schools of Clare county.

EXAMINATIONS.

We have held but four examinations—two regular and two special—the larger number of applicants appearing at the regular to take higher class certificates. Many, in fact nearly all of the teachers in the county whose experience allowed them, have written for and secured second or first grade certificates. I am highly pleased that at last teachers are allowed to get out of the rut, that they may receive credit for what they have done, thus giving them a chance to advance.

TEACHERS' MEETINGS.

Nothing has been done in the way of township teachers' meetings. The probable reason of this is, there are so few schools in each township, and the distance between schools is so great, that it makes it very inconvenient for teachers to get together. Quite a number of our teachers are, however, taking the work of the State Teachers' Reading Circle, and to their benefit. In Clare, Farwell, and Harrison, regular teachers' meetings are held. There is organized in the county a Teachers' Association,

which should meet semi-annually; but for a reason which I do not know, nor could I ascertain, no call was made by the presiding officer this year, consequently we had no meetings. As a rule, our teachers are wont to keep abreast of the times and are using every advantage presented them, that they may attain to more proficiency along the different lines of their chosen profession. Many are in attendance at summer schools, others preparing to enter college in the fall. Advancement seems to be the watchword all along the line. This year no institute was held in the county. One was held a year ago last spring, and it was then decided to hold one this spring. But the time was changed so that now our institute will be held in the summer vacation, some time in August.

PATRIOTISM.

Realizing that one excellent way to create a feeling of patriotism in the minds of the pupils is to have them take part in exercises on special days, Feb. 22, Decoration Day, and such days have been celebrated in a large number of our schools, and with excellent results. Now that the law provides for the Stars and Stripes floating over every schoolhouse in the State, many little ones, who would not otherwise have done so, will experience that pride in country at seeing the national colors so proudly wave, which will spur them on to fight for the welfare of our republic.

LIBRARIES.

I have used all my influence in the establishment of district school libraries; and, as a result, many will be established after the annual school meetings in September. Heretofore, the money for libraries has been used for other purposes in the township, and the town libraries have become little used. In many cases there is literature in town libraries which should be in ashes, no judgment having been used in selection. Many of these will be abandoned and the money divided among the several school districts.

EXHIBITS.

Clare county holds no fair, consequently the schools did not exhibit.

GENERAL.

In the four years I have been county commissioner, I have seen a steady but sure growth in the schools of the county. Everything indicates advancement. I leave the work to Mr. Palmer, my successor, a man whom I believe is interested in school work and who has my best wishes through his administration.

Farwell, Mich.

CLINTON COUNTY.

R. M. WINSTON, *Commissioner.*

EXAMINATIONS.

Teachers are becoming better prepared to take the examinations than they were three years ago. The change in the character of the questions, from a mere compilation of text-book queries to questions requiring thought, was so great that some criticism would have been made, had not the board of examiners been men of good judgment and willing to accept a lower standard of correct answers, until the teachers broadened their minds from the narrow plane into which they had been led by a narrow system of text-book questioning. While we thus speak of our appreciation of the change, we will admit that we have all that we can conveniently carry, and we desire nothing further in this line.

TEACHERS' MEETINGS.

Two meetings of our county teachers' association have been held, and four local meetings, all of which were largely attended. The State Teachers' Institute, held the week commencing April 1, was a success. Superintendents Plunkett of Ovid, and Monroe of St. Johns, assisted by that excellent man, Prof. Chas. McKenny of Olivet, gave us as good an institute as we have ever held, and are entitled to great credit for thorough instruction.

LIBRARIES.

We have established a few libraries, but do not take pride in what we have done. We hail the law passed last winter as a great aid in founding and perpetuating libraries.

EXHIBITS.

Our educational rally at the county fair, fall of '94, was both directly and indirectly of benefit to educational interests. Your address, together with that of Pres. Gorton, the welcome by Hon. W. A. Norton and response by Supt. Plunkett of Ovid, all had a great influence. The exhibit of school work, at the same time, was all through the fair the principal attraction.

ARBOR DAY.

We have made several attempts to celebrate Arbor Day, and succeeded this year in doing this in a practical way by planting trees, shrubs, etc., and otherwise beautifying our school grounds; but we fear the dry weather of the summer has been disastrous to the good efforts made.

GENERAL.

The general condition of our schools is excellent. We do not mean by this to cause people to think that the results of our schools are of a brilliant nature always, or that we have reached our ideals of success; but that, with rather imperfect appliances, not the best material, and opportunities to receive the benefit of education neglected, we are advancing. Public opinion regarding the work of schools, and popular interest in schools, have been shown more during the year just passed than any preceding year of my official career of seven years. This appreciation has been shown by the Grange, farmers' clubs and institutes, and the close inspection of the educational exhibit at the last county fair. The board of supervisors adjourned for the purpose and called at my office in a body to inspect an exhibit of school work. The press has also aided greatly in keeping our people informed of educational progress. We appreciate the fact that our editors are men who recognize and respect popular education.

As we have, so shall we continue to work for the upbuilding of popular education; not by brilliant efforts on one line only, but by our best efforts on all lines, and thus do the greatest good to the greatest number.

St. Johns, Mich.

DICKINSON COUNTY.

ED L. PARMENTER, *Commissioner.*

LIBRARIES.

All districts not already having a township library accessible, have made appropriations for school libraries. A teachers' library of about twenty-five volumes of the most helpful books on teaching, has been established for the use of teachers in the commissioner's office.

STATE MANUAL.

The State Manual and Course of Study has been adopted by all the boards of education in the county.

TEXT-BOOKS.

Text-books are uniform throughout the county, the uniform list having been adopted by every school board.

GENERAL.

Semi-monthly bulletins printed on a mimeograph, have been found a useful means of communication with the teachers during the year. Two visiting days a year are granted by every board except one, and the

schools to be visited are designated by the commissioner, to whom a written report is made of each visit. Everything advisable is being done to discourage the employment of inexperienced and untrained teachers.

The moral responsibility attached to the office of commissioner, and his unmeasured opportunity for helpfulness to the teachers, and influence through them upon the lives and characters of the children, is impressed more deeply upon the writer every year. "As the teacher is, so is the school;" and in a less degree it is true that as the commissioner is, so are the teachers.

Iron Mountain, Mich.

EATON COUNTY.

J. L. WAGNER, *Commissioner.*

The general school work of this county has been improved this year. The higher qualifications required of teachers, have had a wholesome effect upon school work generally; the grading of pupils by some of our younger teachers seems to be a lost art, grading too high being a common fault. We have endeavored to strengthen the work in this, as well as along the line of mental arithmetic and primary reading.

APPARATUS.

The schools of this county are not generally supplied with apparatus, but already district boards are profiting by the new law and purchasing such things for the coming year. City and village schools are generally well supplied with apparatus. Why should our boys and girls in the district schools be deprived of such advantages?

TEXT-BOOKS.

The text-books of this county are in almost every case uniform. A great many schools have re-adopted the same books this year. One of our districts furnishes free text-books.

LIBRARIES.

But very few working township libraries are found in this county; but in the past year at least twenty-five good district libraries have been started, and the prospect for the coming year is that more than twice that number will be established. This we consider one of the necessary things for the successful working of any school.

TEACHERS' MEETINGS.

The plan adopted by the teachers of the county this year has been a departure from our usual custom. Briefly it has been this: to select for a lecturer some prominent individual who would also help in the asso-

ciation on Saturday after the Friday evening lecture. To the committee was assigned the task of selecting such men. For the fall meeting Dr. Winship, editor of the Boston Educational Journal, was selected; for the winter meeting Miss Matilda Coffin of Detroit; for the spring meeting, the committee selected Dr. E. E. White and Prof. McFarland. Comment upon meetings conducted by such educators as these is entirely unnecessary. It is enough to say that our teachers desire more such meetings. Eaton county has been especially favored with excellent institute workers; the sessions have been well attended and full of interest; the live teachers, many of them at least, have put into practical use the theories advanced by institute conductors, demonstrating the practical utility of the county institute, when properly carried out. Many school officers are beginning to realize the beneficial effects of institutes and associations upon teachers, and are giving such teachers the preference. We believe we are safe in saying, that the educational spirit in this county is up to the standard.

Charlotte, Mich.

EMMET COUNTY.

ABBIE ROE, *Commissioner.*

APPARATUS.

More apparatus in the line of maps, geographical charts, slate blackboard, and school furniture, has been purchased this year than in any two years previous. The majority of the schools are now fairly well supplied with all necessary apparatus. Many districts now furnish paper, pens, pencils, and ink.

TEXT-BOOKS.

Harper's series are generally used throughout the county. Many districts have adopted the free text-book plan, and the results are so satisfactory on the whole that others are planning to do so at this fall's school meeting.

GRADING.

The grading in this county has gradually progressed since its introduction two years ago, until now all the schools are fairly well classified, registers well-kept, and reports promptly made to the commissioner. The adoption of free text-books and the furnishing of writing material, has greatly aided in this work.

LIBRARIES.

Two years ago there was not a single district library in the county. Now 35% of the schools are supplied with small working school libraries. This effort is entirely due to the interest of teachers and children, as the district boards have not been financially situated to aid in the matter.

TEACHERS' MEETINGS.

Two meetings of the association have been held during the year, and the large attendance of patrons and teachers showed that the institution is coming to be popular with the people, and a power in arousing interest and spreading new ideas. Exhibits were held in connection with each.

GENERAL.

Every school has been visited once each term; several, many times. Evening meetings have been held in the schoolhouses, and every effort made to arouse the people to the needs of the schools. Attention has been directed to the condition of the buildings and grounds, and a healthy sentiment has been created and much good work done along the line of improving and beautifying them. Fences, flagpoles, and trees are now beginning to be the "proper thing."

Harbor Springs, Mich.

HILLSDALE COUNTY.

W. H. FRENCH, *Commissioner.*

EXAMINATIONS.

During the past year we have held six public examinations. About 48% of the applicants received certificates. I believe the new law establishing four examinations, will be much more satisfactory to teachers and examiners.

TEACHERS' MEETINGS.

We have held six joint township meetings. The teachers have been very loyal in their attendance and interest. Very few failed to take the part assigned them, and the meetings have been productive of much good. Besides the joint meetings I have held fourteen evening meetings or Round Table discussions. These were held in each township for the teachers and patrons of that township. They were all well attended. At these meetings we discussed methods, with special attention to grammar, mental arithmetic, language, primary work in reading, numbers, also seat-work. They were in the nature of evening schools of instruction, and all the teachers are very enthusiastic over the results obtained.

The institute held in August, '94, conducted by W. H. Cheever, was a grand success. Our average attendance was nearly 200, and the energy and enthusiasm stored up at that time has been properly distributed during the year.

PATRIOTISM.

I do not believe that more patriotic teachers and pupils can be found in the State than we have in Hillsdale county. Special exercises have been held in many districts, flags have been raised and dedicated with appropriate ceremonies, and it has been our constant endeavor to inculcate such a deep love of country that the rising generation shall be keenly alive to the perils that threaten our peace and happiness, and be prepared to guard well our sacred liberties in the coming years.

SPECIAL DAYS.

Our schools have quite generally observed Thanksgiving Day, Washington's Birthday, Arbor Day, and Memorial Day, with appropriate exercises. There is a good sentiment along this line.

LIBRARIES.

Eighteen districts have established libraries during the year, and we now have twenty-five districts supplied with reference books and good reading material. I feel that this is a good beginning.

EXHIBITS.

Nearly every school was represented in our exhibit last fall. Oct. 3 was a "red letter day" for the school children. There was free admission to all school children, and we had about 2,500 pupils in line of march. State Superintendent Pattengill, Governor Rich, and Senator Patton were present and addressed the pupils and patrons. The pupils' work showed marked improvement over that of former years. We expect a still better exhibit in October, '95.

GENERAL.

The grading of our schools is becoming more and more perfect and is giving general satisfaction. One hundred and twelve have taken the eighth grade examinations and 55 have received diplomas.

There has been a marked improvement in the text-books used. Many districts have adopted our uniform series. Only a few districts are without a dictionary. School officers have been more careful in attending to the needs of the schools. School property is better cared for than ever before. I have visited every school once and nearly all twice and, on the whole, am proud of the teachers who have labored so faithfully during the past year.

I have issued a manual containing statistics and suggestions that I hope may be helpful to teachers, patrons, and pupils. There are many discouraging features connected with the work, but our watchword is "Onward." We will not say fail, we must press the work harder and hope for better results.

Hillsdale, Mich.

HOUGHTON COUNTY.

WM. BATH, *Commissioner.*

Another school year, with its responsibilities, duties, trials, anxieties, and all (except the train of influences which opportunities well-improved set in motion) has gone. It affords me great pleasure to report a marked improvement in the general interest manifested by patrons of our schools in securing well qualified teachers, and in the intelligent appreciation with which thorough instruction is regarded throughout this county. Still, there is a deficiency in public sentiment in some places, in fully estimating the work required of teachers, the high and varied qualifications indispensable to the calling, and the importance of that undeviating support which an earnest teacher may of right claim from every patron, and which must be given, if the school shall prove an entire success. Cases are not unknown, where well-qualified, energetic teachers are allowed to fail because, as is ever liable to be the case, the *wishes* of each patron cannot be consulted and gratified in the selection of a teacher; and hence a groundless subterfuge is sought for withdrawal of that support and encouragement necessary to prevent failure, for which the teacher is irresponsible.

EXAMINATIONS.

The usual number have been held during the year, two specials in addition to the regulars; and it is my firm belief that I am justifiable in reporting a marked improvement in the qualifications of most teachers. At recent examinations they have exhibited more breadth and thoroughness of scholarship, and a much greater knowledge of current events. Many who had held third grade certificates for several years, secured second grade at the regular examinations, and many others are earnestly working for the same purpose.

TEACHERS' MEETINGS.

A teachers' institute convened at Houghton, Aug. 27, for a session of five days. With no other inducement than an apparent desire for improvement, about one hundred teachers assembled. The interest was deep throughout the entire session, each member appearing to feel a personal responsibility in insuring its success. The striking characteristics exhibited in the members, it appeared to me, were earnestness, and a great desire to progress. Too much praise cannot be accorded to Prof. Chas. McKenny, of Olivet, and Miss Ada Van Stone Harris, of Duluth, for their successful work. Miss Harris, with her great soul welling forth interest in her profession, demonstrated how peculiarly a cultivated woman is adapted to the great work of educating the rising generation.

SPECIAL DAYS.

Observance of these days has received particular attention in all our leading schools.

PATRIOTISM.

Many of our schools have floating over them the stars and stripes, and the teaching of patriotism has doubtless begun in earnest.

GENERAL.

My relations with the teachers have been very friendly and cordial, and my earnest purpose has been to assist and encourage them in their patience—trying to work to the full extent of my ability.

I am gratified and encouraged with the assurances that the labors of teachers have been generally crowned with success, and the schools uniformly increasing in efficiency and usefulness. Our leading high schools, under live and efficient superintendents, have unquestionably earned an envious reputation in being models of excellence, both in appointments and management.

Houghton, Mich.

HURON COUNTY.

E. BASKIN, *Commissioner.*

EXAMINATIONS.

The teachers' examinations held during the past year have been entirely satisfactory. The most unpleasant feature of our examinations heretofore has been due to a tendency on the part of some teachers to assist each other in their work. By the adoption and prompt enforcement of stringent regulations, we believe this evil has finally been stamped out. Our examinations this year have been in all respects creditable to the teachers, and in conformity with the requirements of their high calling. Complaints from various sources have been frequent regarding the difficulty of the questions sent out by the State Superintendent. I am not this time in sympathy with the grumblers. So long as these questions are practical, we believe it is to the best interests of all concerned, teachers as well as pupils and patrons, to have the standard of education not only kept up, but gradually raised. This will give us better qualified teachers; and this means better schools, more intelligent citizens, and better government. We realize that knowledge is not the only requirement for successful teaching, but it is one of the essential requirements; and no person who cannot under the present system pass muster at examination, can consistently be said to possess the necessary educational qualifications of an energetic, progressive, up-to-date teacher.

TEACHERS' MEETINGS.

Owing to pressure of other equally important work, I have not been able this year to hold many local meetings. In these meetings, as conducted in this county, all formality is generally dispensed with; teachers become acquainted with each other; a friendly fellow-feeling is engendered; methods, school-room experiences, and difficulties in school management are presented and discussed; and by such means the meetings are rendered invaluable, especially to the inexperienced.

The teachers' institutes of this county have always been considered successful, but in examinations and in visiting schools I must confess that I have failed to discover the fruits thereof. With the facilities now available in nearly every county for securing instruction and professional training, it appears to me that institutes are no longer a necessity. I cannot say that I am in sympathy with the method of providing the fund, or the manner in which it is disbursed, nor do I believe that the expense should be borne by the State.

PATRIOTISM.

The teachers of this county are without exception true and loyal Americans, and improve every opportunity to imbue the minds of their pupils with patriotic sentiments. The means chiefly used to this end are the memorizing of patriotic poems, singing of patriotic songs, Special Day exercises, and the study of the numerous patriotic events in the history of our country.

LIBRARIES.

Considerable interest has recently been manifested in the establishment of school libraries. The funds for this purpose are usually provided by means of school entertainments. In many instances the efforts of the teacher and pupils are supplemented by appropriations from the school board. Every attempt to establish a library has met with liberal encouragement from the patrons, who appear to realize that a generous supply of well selected reading matter is now one of the essential requisites of a prosperous and progressive school.

EXHIBITS.

A school exhibit was held in connection with the county fair last fall. Though but an experiment, it proved to be the most interesting and popular feature of the fair. This year a more extensive exhibit, embracing work from all grades of the district and graded schools, has been prepared. The benefits arising from these exhibits are many and varied. They bring the schools into healthy competition with each other, stimulate teachers and pupils to put forth their best efforts along certain lines, promote and encourage habits of neatness and accuracy, and arouse the interest of the patrons in the work of their schools.

Ubly, Mich.

IOSCO COUNTY.

ALEXANDER C. KAY, *Commissioner.*

EXAMINATIONS.

The teachers' examinations have shown an increased rise in the attainments of the instructors of the county. Some teachers have thought that, because they had taught for a long time, they should obtain certificates without further trial; but in every case a strict examination has been insisted upon. Unless they came up to the general percentage of 75 and did not fall below 60% as a minimum in each subject, no certificates were granted. This caused grumbling among one or two, but gave general satisfaction to the many and it was only just and right. When I began my work as commissioner there were no first grade certificates in the county; now the county has 11 first grades, and stands either first or second in the State in the possession of these certificates. Two years ago there were only 6 second grades; now there are 24. Two years ago there were 39 third grades; now there are 64. And, while the total number of teachers then was only 49, today there are 95 highly efficient and thoroughly capable teachers. This gives the county the largest number of teachers it ever had, a number of qualified teachers fully three times the supply of home teachers needed to fill the county vacancies; and from what I have personally seen, the great majority of these are not only equal but superior to the great majority of teachers in the State. Indeed we are now supplying teachers for six counties besides our own. In Alcona county no fewer than twelve of our teachers taught under our county certificates.

TEACHERS' MEETINGS.

While there have been no local or township teachers' meetings, there have been regular monthly teachers' meetings held at all the leading centers of population. At these meetings I have always given a lecture or lectures on subjects interesting and useful to teachers. The teachers themselves have read papers or given talks upon special features of instruction. General conversation and criticism followed, and thus a high interest in the education of the county was kept up. When visiting schools in the county I have been in the habit of holding meetings with the whole community, and have given popular lectures, inviting the remarks of the audience at the end of the lecture. These meetings I have found of great value in stirring up the enthusiasm of the people.

GRADE EXAMINATIONS.

Regular pupils' examinations have taken place over all the county with the printed questions. Last year there were 24 diplomas given out among 31 applicants. This year more schools have taken part, and of 39 applicants 35 have obtained diplomas. These diplomas have the signa-

tures of the Superintendent of Public Instruction, the commissioner, the teacher, and the director, and are highly appreciated both by pupils and parents. The enthusiasm is at the highest pitch and the county never stood higher educationally than it does at present.

LIBRARIES.

Seven schools have purchased school libraries, and three have procured flags during the year. I have personally made presents of books to schools, just to encourage them in getting libraries.

PRIZES.

To encourage the teachers, I last year gave a prize of books, including an educational cyclopedia, upon the best essay on the subject of the "School and Its Work." This year I offered four prizes of encyclopedias (Britannicas) for the best essay upon (1) The Education of the State of Michigan. (2) The Education of the County, both in its chartered and district schools. (3) The Teacher, his Work, Attainments, and Qualifications. (4) Theory and Art of Teaching. My aim has been to elevate the teacher both intellectually and professionally. I have just received several very able essays in answer to my proposals, but they are not yet fully adjudicated by the committee appointed for that purpose.

READING CIRCLE.

The reading circle for teachers has been efficiently carried on and I supplemented the prescribed books by further information on the subjects studied.

PATRIOTISM.

At the raising of the flags, the old soldiers turned out, speeches of a patriotic kind were delivered, and patriotic songs sung.

EXHIBITS.

Teachers have objected to school exhibits at the county fair, as no exhibit can display the work either of the pupil or the teacher. The matter was thoroughly discussed and several gave their experience of the Chicago exhibit as being practically a failure. In this I agree with the teachers. Teaching is not display and it is apt to feed the vanity of a few weaklings at the expense of the thorough and systematic teacher.

GENERAL.

Never before in the history of the county of Iosco have the schools been so regularly and carefully visited, most of these several times a year. The interest in the education of the county was never so high, nor was it ever in so advanced a condition. The teachers are of the highest order, the schools under the best of management and instruction, and the people awakened, with the liveliest enthusiasm to the true welfare of their schools.

East Tawas, Mich.

IRON COUNTY.

CHAS. W. MICKENS, *Commissioner.*

In accordance with your desire I herewith subjoin my manuscript report for Iron county.

EXAMINATIONS.

The examinations have been more largely attended the past year than formerly, the papers have been better written, and a spirit of independence has been developed. Fewer failed to receive their certificates than last year.

TEACHERS' MEETINGS.

Teachers' meetings in connection with the reading circle have been held on both sides of the county. Nearly all of the teachers have taken part in these meetings and have derived much benefit therefrom.

The institute was held in October, '94, and was enthusiastically attended. Every teacher in the county was present at some session, and the good attendance was a noticeable feature throughout. The Superintendent of Public Instruction was present a part of the time. The Range Association met at the close of the institute, thus making the first institute of Iron county a great success.

PATRIOTISM.

Patriotism has been thought of in connection with special days. These days have been carefully observed in our graded school, and to some extent in the rural schools. Other means of teaching patriotism have also been made use of.

LIBRARIES.

The commissioner has urged the purchase of libraries, but none but the village schools have purchased any as yet. A sentiment has been created in their favor, and the time is near at hand when small libraries will be placed in many schools.

GENERAL.

As our term of office ends this year, we close by thanking the Department of Public Instruction for the many valuable hints and suggestions given us from time to time, helping to make our work a success in part at least. With best wishes for the success of the rural schools of Iron county, we submit them to the kind care of our successor.

Crystal Falls, Mich.

JACKSON COUNTY.

WM. H. MAYBEE, *Commissioner.*

In submitting you this report I hardly know what to say farther than was stated in my annual report of last year.

While I have made fewer visits this year than last, I aimed to make them longer and more frequent to those who were teaching their first terms, thus assisting them what I could at the beginning of their experience.

EXAMINATIONS.

The character of the questions sent out by the Department for teachers' examinations, has been such as to stimulate a deeper study and a broader understanding upon the part of those who would teach. While a few are inclined to complain of this, I fervently believe it will result in the enrichment and permanency of the teaching force and consequently a corresponding benefit to the schools in general.

TEACHERS' MEETINGS.

Our local teachers' meetings have been attended with like enthusiasm and success as those of last year. The Inspiration Institute of last January was of very great practical benefit to our teachers.

LIBRARIES.

The number of school libraries is gradually increasing and, on the whole, our teachers are laboring successfully in many districts to obtain them.

GENERAL.

My remarks of last year will answer for the other points called for in your blank. On the whole, our schools are certainly doing all that they have ever done, while I believe that the future gives promise of better work more nearly professional in its character, aided, as I believe it will be ultimately, by such legislation as the educational public demands and sooner or later must receive.

Grass Lake, Mich.

KALAMAZOO COUNTY.

ASHLEY CLAPP, *Commissioner.*

SCHOOL LEGISLATION.

Recent school legislation is an all-absorbing feature among rural school officers, especially "Necessary Appendages," as recited by law. Many are in doubt as to the law, whether it is optional or compulsory. No one denies that these appendages are all-important and should be in every schoolhouse; still a knowledge of obligation will hasten some officers to perform their duty. The compulsory school law as amended is greatly improved and strengthened. Heretofore it has been of very little, if any, value; now we hope it will bring the boys and girls into school.

PATRIOTISM.

The legislature nicely earned a reputation for patriotism by enacting a law to place "Old Glory" on every schoolhouse in Michigan, which is in line with the glory won by Michigan on the battlefield; but it seems that the requirements of keeping the flag up all the time might be modified in the interest of teaching history.

EXAMINATIONS.

I question the propriety of but one act in new legislation, and that is cutting down the number of examinations. It seems to me that more examinations would be quite desirable. With one hundred fifty to two hundred candidates, and oral reading, there is no possible way to examine in that branch and do anything like a satisfactory job. Small classes are much more easily managed, and the results are much more satisfactory. I would like to see examinations so conducted that each candidate for second and first grade certificates, at least, could be given a good oral examination in the most important branches.

GRADE EXAMINATIONS.

An increase in the number of teachers employed by the year and making teaching a profession, in second grade certificates, and the interest taken in grading, all show their results in the eighth grade examination.

SCHOOL MEETINGS.

An effort has been made to prompt school officers more strictly to observe legal requirements in conducting annual and board meetings, and thereby learn and teach business principles. Although not an entire success, the postal card notices sent previous to annual meetings have had good effect.

INSTITUTES.

Our institute of four weeks, with the very interesting lecture by the Superintendent of Public Instruction, combined to give our teachers new vigor and interest in the coming year.

Kalamazoo, Mich.

KALKASKA COUNTY.

BERTHA H. WHIPPLE, *Commissioner.*

EXAMINATIONS.

I have held four teachers' examinations, principally attended by young people from 15 to 18. About one-fifth are teachers of more than one year's experience.

TEACHERS' MEETINGS.

Our county is so sparsely settled that local teachers' meetings are very inconvenient. We have had what we call classes in three places, for the purpose of carrying two studies that will assist to a second grade certificate These meet every two weeks.

The institute of August, '94, was the largest and liveliest ever held in this county. Many in attendance who were not teachers. An all-round, good, profitable week.

PATRIOTISM.

Many of our schools that cannot procure a flag have decorated their rooms with small flags and the tri-colors in various shapes. Some exercises have been given of a patriotic nature.

LIBRARIES.

Libraries are few and far between, hard to get, but thoroughly appreciated. Two new ones this year.

Kalkaska, Mich.

LENAWEE COUNTY.

C. F. FIELD, *Commissioner.*

EXAMINATIONS.

Six teachers' examinations have been conducted in this county during the past year, three of which were held at Adrian and one each at Tecumseh, Morenci, and Blissfield. I have lengthened the special examinations to a day and a half, this seeming to be necessary, owing to the time required to answer the questions submitted by the Department. I think, however, that one day ought to be entirely sufficient to test the qualifications of candidates for third grade certificates, and if the Department would send questions that would require less time to answer, it would result in less drudgery for both teachers and examiners, as well as prove a financial saving to candidates and to the county.

TEACHERS' MEETINGS.

We have three flourishing township teachers' associations in the county, whose meetings have been well attended and whose influence has been productive of an increased interest among all teachers and patrons who have come within their scope.

As to institutes, I venture to repeat the opinion expressed in my last annual report, that State institutes, as generally conducted, are productive of very little lasting benefit. What most of our teachers need is not *lectures* by men whose theories are inapplicable to the conditions of the rural schools, but rather, practical *academic* work, done by the teachers under the guidance of practical men who know just what the county teachers, and primary teachers generally, need. In other words, I believe that institutes would accomplish far better results if they were converted into summer normal schools of from four to six weeks' duration. If we must have the institute, however, I believe that an "inspiration institute," such as those held in the State last year, under the direction of our State Superintendent of Public Instruction, is by far the most satisfactory and most profitable. Such an institute was held at Adrian last fall, with gratifying success.

PATRIOTISM.

In my opinion patriotism can best be taught by teaching good morals and training our children in their obligations towards society and the State. Therefore, while the observance of exercises such as flag drills, etc., are all very well in themselves, I do not think so much reliance should be placed on them as on the teaching of our national and State history, including the lives of our great men, and on the inculcation of a deep sense of responsibility to the State, on the part of our youth. Many of our schools have come into possession of flags during the past year and many schools have held special day exercises.

LIBRARIES.

Many schools have come into possession of small libraries during the year, and there seems to be a growing appreciation of the value of libraries in the school room.

EXHIBITS.

As has been customary for several years in this county, a school exhibit was held at our county fair last September, and attracted much interest. Such exhibits may be made very effective agents in fostering a strong educational sentiment in the county. They mean much hard work on the part of teachers, pupils, and commissioner, but when judiciously managed, they *pay*.

GENERAL.

In conclusion I can say that the educational interests of the county were never healthier than now. I think that the most serious obstacle at present to the progress of our primary schools, is the inability or indifference of school officers. When some means can be devised of arousing school boards to a realizing sense of their responsibilities, so that they will take more than a perfunctory interest in the schools, a great advance will have been made. Nevertheless, it is very gratifying to be able to say that, during the four years of my commissionership, the schools of Lenawee county have made substantial progress.

Tecumseh, Mich.

LIVINGSTON COUNTY.

STEPHEN DURFEE, *Commissioner.*

APPARATUS.

Each school in the county is furnished with Welch's Classification Register, and the teachers are furnished with the necessary blanks and required to make a report at the close of each term. A majority of the schools are furnished with a dictionary. The blackboards are generally quite good. A number of our schools have purchased good globes, but it seems to be quite a difficult matter to get maps, charts, etc. I think, as a whole, our schools are quite well supplied with apparatus.

EXAMINATIONS.

We have held during the year six examinations. Teachers have complained somewhat of the severity of the questions, but I think it will result in advancing the interests of our schools by dropping out a few of the old fogies. We have raised the per cent required for a third grade certificate from 75% to 80%.

READING CIRCLE.

One hundred forty of our teachers have completed the work of the T. R. C. The work has been very satisfactorily done, and I think will result in much good to our schools. Meetings have been held throughout the county each Saturday, and the work of the T. R. C. reviewed and other topics relating to the school work discussed.

TEACHERS' MEETINGS.

The county institute was well attended and much enthusiasm was manifested.

GRADING OF SCHOOLS.

The work of grading the country schools has been quite successfully accomplished and the teachers are doing their best to perfect the system. There were about 60 pupils from the country schools who passed the eighth grade examination in February, a marked advance over last year's work. The pupils who pass this examination and enter the high schools of the county, are generally able to do satisfactory work in the ninth grade.

Fowlerville, Mich.

MACKINAC COUNTY.

D. H. STRINGHAM, *Commissioner.*

EXAMINATIONS.

I am pleased to report a marked improvement in the work done at our teachers' examinations during the past year. I attribute this in part to the law limiting the candidate to three third grade certificates, and to the nature of the examination questions that have been supplied us the past two years. The teachers with two or three years' experience have, with few exceptions, answered the questions very satisfactorily. Most of the failures have been those of novices. The board have issued only one first grade and three second grade certificates during the year.

PATRIOTISM.

This subject is receiving the attention of a large majority of our schools, and I think the school children of Mackinac county are being taught the principles of true patriotism and are as loyal as those of any other county in the State.

SPECIAL DAYS.

Washington's Birthday and Decoration Day were generally observed throughout the county, and the school children made acquainted with the reasons for observing these days.

LIBRARIES.

Our district schools are sadly in need of school libraries almost without exception. This will be remedied as soon as possible.

GENERAL.

Several new districts have formed the past year. Of these but very little can be said, as they have but recently commenced holding school. As a rule all the schoolhouses are comfortable, all exceedingly plain, and as yet but little has been done towards beautifying the school grounds. While the districts of older counties are beautifying their grounds by planting and growing shade trees, up in this county the people are busy cutting down the trees to make room to build, and as a consequence stumps remain to mar the beauty of the playground. Time and perseverence, however, will work wonders; and this is what we want.

Many of the outhouses are a disgrace and should, and undoubtedly will, be replaced by suitable ones. The township unit system seems to be gaining friends. Two more townships have been organized under this system the past year, making five in all.

Mackinac county has been blessed with public spirited and liberal supervisors, and anything that has been brought up for the advancement of the schools has always received their liberal support. In the past year they have voted money for grade registers to be put into the schools, and the work of grading has thus been commenced and will be pushed forward as fast as practicable. Taking everything into consideration, the prospects for the educational interests of Mackinac county are good.

MARQUETTE COUNTY.

J. B. MONTGOMERY, *Commissioner.*

I consider the year just closed one of the most prosperous educationally, in my experience as commissioner. Teachers have been willing to follow my suggestions relative to methods of teaching, grading, classifying, etc., in a manner decidedly pleasing to me and, I think, profitable to the schools. Nearly every one of them has taken the State Reading Course and its good effects were seen in their work.

EXAMINATIONS.

Our examinations are conducted with care and justice, and teachers are earnestly striving to obtain higher grades of certificates.

PATRIOTISM.

Patriotism is taught in every school of the county, and every building has the honor of supporting "Old Glory," if not on a pole, on its walls; and patriotic songs and recitations have a prominent place in every public exercise.

LIBRARIES.

People are taking considerable interest in the question of school libraries, and I think the time is not far distant when every district school in the county will be supplied with a good working library.

GENERAL.

I have visited every school in the county once and some of them twice; have conducted grade examinations, attended grade commencements, and done all in my power to create a spirit of educational enthusiasm among the people.

At each public meeting I gave a short address calling attention to changes in the school laws, to the importance of parents' coöperation with the teacher, to the insufficient salaries paid in some districts and the consequent results, to the duty of the teacher and his relation to the school board, etc., etc. I feel that much has been accomplished and that school boards are looking into the condition of their buildings and teachers' supplies more carefully than ever before.

I desire to thank my associate members on the board of examiners for their kind assistance during the year; also the city superintendents, principals, and teachers of the county for their uniform and hearty support.

Champion, Mich.

MASON COUNTY.

EFFIE G. HUSTON, *Commissioner.*

As in all of the newer counties, the condition of our schools improves each year. Teachers are becoming better qualified and thus are able to do more thorough work in school.

TEACHERS' MEETINGS.

Teachers' association meetings have been well attended and have proved helpful and inspiring to greater effort.

The annual institute has been successfully conducted. Nearly all teachers attend, some for the credit allowed on examination, but the majority, I think, for the benefit received.

LIBRARIES.

During the year several schools have raised money sufficient for the beginning of a library. Pupils and teachers are interested in the cause.

SPECIAL DAYS.

In the larger schools special days are generally observed.

EXHIBITS.

Little is done for exhibition at the county fair. The frequent changing of teachers prevents the preparation of such exhibits the preceding spring, and schools open so late that there is no time for it in the fall.

Ludington, Mich.

MECOSTA COUNTY.

P. M. BROWN, *Commissioner.*

EXAMINATIONS.

In this county we have held four special examinations, making six with the regulars. I believe five would be fully as well, as nearly all applicants attend the regulars. The questions during the past year have been very satisfactory to teachers, and they have watched with no small amount of interest, the innovations in the line of questions having a tendency to make them more studious. The law relating to holding but three third grades, has gathered a multitude of teachers from every quarter into the schools to prepare them for higher grades.

TEACHERS' MEETINGS.

Each year adds to my conviction that meetings of this kind, where teachers and commissioner can meet to discuss methods which have been pursued and to suggest other methods that should be followed, produce greater and better results by far than associations of a more general character. We have held ten in this county this year, but the attendance on account of the weather was not as satisfactory as it has sometimes been.

As to institutes, long may they continue to be held. They stand in the front rank as an educational help. We often hear it said that they cost too much and amount to nothing, but this is the prince of humbugs. Lecture bureaus send out men who are paid $100 for talking to the people one evening, and the people are well paid for the investment; but the grand men who are sent out to work in institutes, spend a whole week

with the teachers of a county and are paid at the most only $50. Some of the best things learned that have enabled me to help myself and others, have been obtained at institutes. I have attended nearly all the sessions every year for fourteen years.

PATRIOTISM.

Pupils, patrons, and teachers are thoroughly patriotic, and I believe the observance of "special days," which has been encouraged extensively by the Department, has been attended with a growing interest in this direction.

LIBRARIES.

At the beginning of the year I issued circulars to the teachers inviting them to devise means for raising money to purchase libraries. Some districts felt too poor to aid in this work. Many others have a good library of thirty or forty volumes as the result of the faithful, earnest work of the teachers, aided by the no less interested patrons. I believe much more will still be done

EXHIBITS.

We have had but one at the county fair, but we have had many very pretty ones at institutes, associations, and at other times. Nothing has awakened so intense an interest in school work among the pupils and patrons as the exhibits. I believe at the county fair is a very good place for them.

GENERAL.

We have had some difficulties to overcome. The close times for money has been the direct means of irregular attendance in many districts, fewer school months in a year, and a much lower rate of wages paid to teachers. Yet we found much to encourage in the closing months. About forty-five bright girls and boys passed the eighth grade and received a diploma. The papers of this grade were never better. They showed earnest work done by pupils and teachers. Many pupils of the seventh grade made a good showing in the direction of passing next year.

Big Rapids, Mich.

MIDLAND COUNTY.

MELINDA L. MILLS, *Commissioner.*

EXAMINATIONS.

The policy pursued by the board last year has made it possible to furnish our schools this year without granting specials or lowering our standard. While we have not as yet granted many second grade certificates, we are quite confident there will be no lack at the end of the three years' limit.

TEACHERS' MEETINGS.

We have held two county and two township teachers' associations this year. Teachers have evinced a commendable zeal in attending these and in otherwise promoting their success.

Institutes are indispensable—the one teachers' meeting for the county in all the year. Our last, conducted by Superintendent Blodgett assisted by Mrs. Martin, was perhaps the best in all the series.

PATRIOTISM.

A "warm wave" of patriotism seems to have reached the people of this county lately. Ever patriotic, they are a little more demonstrative, as is evidenced by the general observance of all national holidays and the hearty support giving the schools in their flag raisings, in most instances making of them real "Fourth of July" occasions. I am persuaded that teachers and patrons are appreciating the need and the opportunity for cultivating a spirit of patriotism.

LIBRARIES.

A few schools have purchased libraries (money raised by entertainments), and a healthful sentiment prevails as to their need. Hard times is the one great drawback. I do think there should have been more definite legislation along this line, either by making their purchase compulsory as for flags, or by placing it in the category of needed apparatus.

EXHIBITS.

Thirty schools participated in our county fair exhibit last October, and thirty-three took part in the parade. Had the weather been pleasant, nearly every school in the county would have been in line. This parade, with its bands, banners, and badges, forming at central

school building at 10 a. m. and marching to Fair grounds, a mile distant, presented a sight long to be remembered. Washington Gardner addressed the schools. Appropriate songs composed for the occasion, had been memorized by pupils preparatory to coming. Nearly all of Floral Hall was occupied with school exhibits that would have done credit to Lansing or the World's Fair. All this meant a great deal of hard work, but it paid manifold.

GENERAL.

This is the third year our county has had grade examinations. First year we had seventeen graduates; second year, twenty-six; third year, thirty-five. Many of the teachers have had graduating exercises and this is having a salutary influence upon the schools. Many of our schools are crippled because of failure in getting their share of the delinquent tax. Several towns are financially embarrassed—due to mismanagement and fraud—and in a few instances where districts have sued these towns for their share in the moneys, the expense has exceeded the amount due. It were well if there could be some State provision to bring these defaulters to justice. The commissioner is helpless. Many of the districts are so poor, I haven't the heart to insist upon any extra expenditures. Some improvements have been made, but no radical change is apparent in the beautifying of grounds. One teacher, 61 years of age, (Hope District No. 1) planted 61 trees Arbor Day. This is the best kept house and grounds in the county. The commissioner marked all the grade papers and attended most of the graduating exercises. She has talked "school" at thirteen citizens' or patrons' meetings. She visited most of the schools two, and many of them three times. Two districts had but one term, and these closed before she knew it; one could not be reached because of the washing away of bridge; and two districts, but recently organized, will not have school until fall.

Midland, Mich.

MISSAUKEE COUNTY.

GEORGIA ROCHE, *Commissioner.*

SPECIAL DAYS.

A few of our best teachers have special day exercises, but they are not general.

TEXT-BOOKS.

Two more districts voted to furnish free text-books, making in all 33 on the free text-book list.

LIBRARIES.

Interest in the establishment of school libraries is growing. I am certain that it will be but a short time when all our schools will take hold of this matter. Three have been established. One district put in a $25 library mainly through the efforts of the teacher in charge. I hope the good news will spread and inspire others to do likewise.

TEACHERS' MEETINGS.

The institute held in August, at Lake City, though not largely attended, was a success. All who attended were inspired to better work, and expressed themselves as well pleased. Some of our teachers attended summer normals and some had not returned from their vacation; hence the light attendance reported. I think if the institute was appointed earlier in the year when our teachers are in the county, it would give better satisfaction. They are averse to the holding of institutes during the hot weather.

EXHIBITS.

About one-third of the space in Floral Hall was given to the school exhibit, and the people showed unmistakable signs of appreciation. I believe it is one of the best means of arousing the interest of patrons in school work. In comparing work with each other in the county, the teachers were awakened to do better work. W. N. Ferris was with us on "School Day" and gave a stirring address which was enthusiastically received.

Lake City, Mich.

MUSKEGON COUNTY.

JOHN O. REED, *Commissioner.*

In completing my work for the year 1895, I can truly say that I have worked for the advancement of the schools of Muskegon county. I believe they will rank with the best in the State. Having visited every one from two to six times, I can see a great change for the better. A close adherence to the "State Course of Study" and nearly a uniformity of textbooks, has had a great deal to do with our success.

EXAMINATIONS.

I have always tried to impress upon the applicants the true purpose of the examination, and I believe my course has met with the approbation of all the progressive teachers, school officers, and the public.

PATRIOTISM.

The majority of schoolhouses have floating over them the "Stars and Stripes," and the teaching of patriotism has become a settled fact, the love of country being interwoven as character is being builded and knowledge extended.

TEACHERS' MEETINGS.

Three county meetings have been held during the year, and we have had seventeen local meetings. All were well attended. Every endeavor was made to secure the attendance of school officers and patrons, and a grand success was the result.

We have always had practical educators at our institutes which have been helpful and successful.

SPECIAL DAYS.

The custom of observing special days prevails in nearly all the schools of this county.

LIBRARIES.

Two years ago the only thing in this line was a dictionary. Now many of our schools are supplied with libraries.

EXHIBITS.

We have an annual school exhibit at the county seat. This has aroused more interest and life in school work than anything else.

GENERAL.

In general there has been a marked improvement in the character of the work in our schools during the past two years. With one exception, every teacher in the county has been faithfully working to the State Manual, and the results have been very flattering. The test examination questions sent out by the Department for diplomas, have also resulted in thorough work. I have granted fifty-seven diplomas. Nearly all our schools had graduating exercises. Many of our graduates passed the third grade examination.

In closing this report I wish to acknowledge my obligations to the high school superintendents of this county for their valuable suggestions, wise counsel, and for the deep interest they have constantly manifested in the welfare of our schols.

Whitehall, Mich.

NEWAYGO COUNTY.

JOHN HARWOOD, *Commissioner.*

SCHOOL BUILDINGS.

The school buildings, as a rule, are all in good condition; and the school grounds are being beautified year by year by the planting of trees and the cultivating of flowers.

TEACHERS' MEETINGS.

The institute held in Newaygo last year in the last week of August, under the management of Prof. Sheffield of Muskegon, conductor, and Prof. Hill of Big Rapids, assistant, was one of unusual interest. There were one hundred fifty teachers in attendance; and it was, so far as I could learn, the opinion of each who attended that to attend such an institute was not a waste of time and money, as is too often the case with institutes.

GENERAL.

The schools of Newaygo county were never supplied with a more efficient and better equipped corps of teachers than at present. One feature that particularly marks the progress in our schools for the last two years is in class work in recitation. Commencing with the 6th grade, I have taken considerable pains to show the teachers the advantage of short lessons carefully selected, and to be recited without the aid of questions. This of necessity develops a greater interest in the class, as it compels closer attention on the part of the pupils; and whatever secures attention, secures success.

The schools of the county are now all graded and each one provided with a grade register and, as near as may be, have a uniformity of textbooks.

I have visited one hundred twelve schools the last year, and know that the schools are all practically doing good work. "The Course of Study" prepared by the State Department has done much to unify the work by giving to each teacher the same plan, the same system, to regulate and govern the work of the schoolroom.

White Cloud, Mich.

OAKLAND COUNTY.

H. H. SNOWDON, *Commissioner.*

TEACHERS' MEETINGS.

We have had two very successful meetings of the Oakland County Teachers' Association, and the teachers were much benefited by the same. Local teachers' and citizens' meetings have been held in different sections of the county, and most gratifying results have attended the same. These meetings were well attended by teachers, patrons and pupils, and an educational interest was aroused that would be hard to estimate. Last year a large and successful institute was held at Holly. Our teachers are taking more interest in these institutes, and I believe they are being fully repaid for all their trouble. At the close of the institute last year, the citizens of Holly tendered the teachers a reception which was highly appreciated by all.

APPARATUS.

It affords me pleasure to be able to report a steady increase in apparatus in our district schools. I believe the new law will be the means of supplying our district schools with all the apparatus necessary.

TEXT-BOOKS.

We have been working hard to secure a uniformity of text-books and hope to succeed to some extent. Teachers are apt to introduce their favorite books, and we find it hard work to keep up a uniformity to any great extent.

EXHIBITS.

Last fall we had a very successful school exhibit at the county fair. The interest taken in this exhibit and the large number of people who examined the same, amply repaid teachers and pupils for all their trouble.

PATRIOTISM.

"Old Glory" floats over a large number of our schools, and no opportunity is lost to kindle the fires of patriotism in the breasts of our boys and girls.

LIBRARIES.

School libraries are on the increase, and a number of our schools have made a good start in establishing the same.

GENERAL.

The schools of the county as a whole are doing well and are rapidly advancing. Our school houses and grounds are being improved, and much interest is being manifested in the same. Looking back over the year that has passed, I cannot but feel pleased with the same, and hope and trust the coming year will find teachers, pupils, and parents willing and anxious to put forth their best efforts in building up and strengthening our public schools.

Pontiac, Mich.

OCEANA COUNTY.

D. E. McCLURE, *Commissioner.*

TEACHERS' MEETINGS.

The general and local Teachers' and Patrons' Associations have been a great source of help and inspiration to teachers. We have reached nearly all the patrons in the county through these meetings. About twenty such meetings were held, and a better educational sentiment is the result. In connection with these meetings we have had evening lectures, at which Col. F. W. Parker, Hon. Henry R. Pattengill, Hon. Washington Gardner, Rev. F. L. Thompson, Rev. J. C. Floyd. W. N. Ferris, Judge MacMahone, and others, have enthused the people on educational matters. At Hesperia Grange and Teachers' Association, Messrs. Pattengill and Parker addressed six hundred people.

OCEANA LECTURE UNION.

This is an organization of teachers and patrons which has for its object the furnishing of good inspiring evening lectures at any point in the county. The Union is only a year old, but it is believed the movement can be made a success. We shall try it more thoroughly the coming year.

PATRIOTISM.

"Old Glory" now has a place in every school in Oceana county. We have our flag days, and in many other ways strive to inculcate a love of country. Nearly every school in the county took part in the exercises of Memorial Day.

LIBRARIES.

The Pupils' Graded Course of Reading is now in use in full or in part in every school in the county. The pupils are reading "The Story of Liberty," "Old Times in the Colonies," "Building the Nation," "Little Men,"

"Little Women," "Uncle Tom's Cabin," "Kate Douglas Wiggin's Story Hour," "Grandfather's Stories," "Hans Andersen's Stories," "Black Beauty," "Little Lord Fauntleroy," "Ben Hur," "David Copperfield," and other books of a similar character. This reading of good literature is doing much good in the county. We notice many young men and women taking more interest in better living, doing something for themselves, doing something to make the world better. We had twenty-five graduates this year from the country schools who had taken a course in reading good literature. Not only have we reached the children, but the parents, through the use of good books. This is a hopeful sign. When the people reach such a point of interest in the education of their children that they will see to it that men of broad views are sent to make laws for education, the country will have entered upon an educational reform that will mean something. God hasten the day!

Shelby, Mich.

OSCODA COUNTY.

STEWART GORTON, *Commissioner.*

As to the general condition of the schools, they are certainly in better condition than they have been in former years. The teachers are better equipped and disciplined for the work, and are doing their work with more system. Slowly but surely the schools are attaining to a more perfect classification, and teachers and pupils are coming to see and appreciate the advantages of the new way over the old go-as-you-please methods. Many, but not all the schools, are supplied with maps, globes, charts, dictionaries, and good blackboards. The dear old flag spreads its protecting folds over many congregations of young Americans, inspiring them with love of country and pride of nationality. The school officers and people were never so earnest and enthusiastic in support of their schools; still this tendency and growth has not reached its maturity.

As to the prospects, they are a "commixture strange of Heaven and Earth and Hell," beset with dangers and difficulties, but hopefully thrusting out their courageous countenances through the rifts in the clouds of discouragement. The spirit and disposition of our people are admirable, our teachers are progressive and patient under disadvantages, and I cannot say too much for the really good work our children are doing in the schoolroom. They are the nation's hope, and their after lives will certainly be the nation's pride.

> "Oh! what would the world be to us
> If the children were no more?"

God bless them! let us do what we can for them while the opportunity is ours.

But while our people are paying self-imposed school taxes of from three to seven per cent, and in addition, in several districts in the county,

are making voluntary contributions in order to obtain longer terms and better schools, the State goes calmly on committing the same old damnable crime of stealing from our children their just portion of the primary school interest fund, and robbing them of what is equitably theirs, because some now defunct legislature that, in its innocence didn't know any better, devised a foolish and rickety method of dividing the money. Law is not always justice, and age adds no respectability or dignity to a crime. The plan is wrong and should be righted. While our schools have some of the tools and appliances for the prosecution of their work, they are sadly behind the age as compared with the other occupations and professions of the race. The farmer must have all the latest improved machinery, even to a patent milk stool. The lumberman no longer attempts to pursue his business with the old fashioned and bungling contrivances of antiquity; and even the fisherman who goes out for a little sport, must be equipped with a trout basket, a jointed pole, reel, landing net, silk lines, snells, leaders, sproat and limerick hooks, artificial flies, bait boxes, clearing rings, disgorgers, trolling spoons, floats, and patent-adjustable-double-back-action-overstrung-sinkers, besides several dozen minor instruments and tools handy to have, even the names of which are known only to the fraternity. Is it not, then, apparent that our teachers, in their important work of preparing the children for the custody of the nation's future, should be supplied with all the helps there are.

OTSEGO COUNTY.

F. W. COGSWELL, *Commissioner.*

EXAMINATIONS.

It has been our aim for the past few years to raise the standard of requirements for teachers' certificates. As a result we have better and fewer teachers, and wages are consequently nearer what they should be. We are satisfied that this has paid, as thereby we tend to *keep* the best teachers, and the progress in our schools has witnessed to it. Still there is room for improvement in the same line. It seems as though the law does not make sufficient provision for rooms to hold examinations in. It sometimes happens that a proper place cannot be secured. Though it is not to be expected that an examination will ever be a "dream of delight," yet it is to be hoped that our law-makers can remedy present conditions by making it always possible to secure convenient and comfortable rooms to hold them in.

LIBRARIES.

Several of our schools during the last year have secured good working libraries. The Gaylord school has added greatly to its library and now has many excellent books.

Gaylord, Mich.

OTTAWA COUNTY.

CORA M. GOODENOW, *Commissioner.*

EXAMINATIONS.

The marked improvement in the qualifications of our teachers is due to the rigid examinations.

TEACHERS' MEETINGS.

The schools in the county during the past year have been in a prosperous condition. In addition to our bi-monthly meetings, eleven teachers' circles have been organized, the teachers meeting weekly and bi-weekly. In most of these circles the teachers have done the Reading Circle work as planned by the State.

Our institute was held in August. It was one of the best ever held in the county, and its work was a source of help to our teachers.

PATRIOTISM.

Our teachers have made a special effort to inculcate patriotism in our schools. Flags have been secured, flagpoles raised, and in quite a number of districts patriotic meetings have been held to float their flag for the first time.

LIBRARIES.

Our teachers are awake to the necessity and usefulness of a good reference library. About forty have been established this year.

COUNTY FAIRS.

The three county fairs of Ottawa county will each have an educational day, at which time a contest in spelling will take place.

GENERAL.

This year we have had an excellent corps of teachers, steady, honest, hard workers, and in all but five instances were ornaments to the schoolroom.

One of the marked improvements is the interest taken by the teachers in the school surroundings. Outbuildings have been cleaned and repaired. Good drinking water has been obtained for the pupils. Arbor Day was quite universally observed.

Berlin, Mich.

ST. JOSEPH COUNTY.

JOHN EVERT, *Commissioner.*

AIMS AND MEANS.

General improvement has been the aim throughout the year in county educational work. Among the means to that end which have been constantly kept in view are the following: improvement of teachers, thoroughness in studies, good discipline, good morals, careful adherence to the plan of the uniform course of study, encouragement of pupils to complete said course and secure diplomas, graduating exercises in district schools, employment of teachers for longer periods, teachers' institutes, uniformity of text-books, school libraries, care of school property, coöperation of parents, improvement of schoolrooms, outbuildings and grounds, and efforts to encourage a spirit of enthusiasm. Although perfection has not been reached along any of these lines, it is gratifying to be able to state that considerable progress has come as a result of the efforts of our workers in the educational field.

UNIFORM COURSE OF STUDY.

The uniform course of study is now being followed by all the district schools of the county. The good it has done and is doing is its strongest recommendation, and calls for still stronger efforts with the view of securing more and more of the benefits of the system. Forty-one district school diplomas were granted during the year, and graduating exercises were held for the first time in a number of districts.

THOROUGHNESS.

"Be thorough" has been the motto of the schools for the year. By familiar talks to teachers and pupils urging its importance, by advising frequent reviews, and by testing the work of pupils, efforts have been made to reach the end which the motto suggests.

UNIFORMITY OF TEXT-BOOKS.

Considerable progress has been made in the direction of uniformity. Since my last report a list of books was recommended, which list has been adopted by most of the districts, the intention being to make changes gradually and without additional expense.

LIBRARIES.

A comparatively large number of school libraries was established during the year, through the efforts of teachers and pupils. School boards, although earnestly urged to do so, have been very slow to act in

this direction. However, if teachers and pupils continue to work as faithfully as they have done, before the close of another year it will be possible to report, I think, that most of our schools are supplied with good working libraries.

TEACHERS' MEETINGS.

The work of township institutes has been carried forward somewhat more systematically than heretofore. An institute manual containing suggestions and an outline of the work was sent to teachers and conductors of institutes, and more satisfactory results have come in consequence of more systematic work. The following suggestions and program, taken from the manual, will serve to explain the plan and nature of the work:

THE PLAN.

1. General program work will be combined with book work. Each possesses advantages which the other does not. That is the reason for the combination.
2. Sufficient uniformity will characterize the work to insure unity. To that end, the same books will be used and the same programs followed throughout the county.
3. The uniformity of programs is limited to a certain number of uniform topics. Other topics are to be added by the different conductors to the "uniform programs" prepared by the commissioner, so that the programs as rendered may be of sufficient length and suited to the special needs of the different townships.
4. A conductor appointed by the commissioner will have charge of the work in each township.
5. The commissioner expects to visit as many institutes during the year as he reasonably can.
6. Conductors send reports to the commissioner of teachers present and taking part in each institute.
7. Persons who hold teachers' certificates and who do good work in four or more institutes during the year in any one township will receive four per cent credit on average standing, said credit to count in granting certificates.

SUGGESTIONS.

1. Aim to have every teacher in the township attend and take part.
2. Give each teacher in the township something to do, assigning the work far enough in advance so that there will be ample time for careful preparation.
3. The programs prepared by the commissioner should be followed. These programs are not intended to be complete. They are partial programs simply. Conductors are expected to add other topics to make the completed programs of sufficient length and to suit the needs of the different townships.
4. Urge teachers to purchase White's School Management. Assign lessons from it, as previously suggested, these lessons to be part of the regu-

lar work of every meeting. Some member of the institute should be designated to ask questions on the lesson, after careful preparation, and to lead in the discussions growing out of the same.

5. Advertise thoroughly. Send notices of proposed meetings to the local papers. Publish the proceedings also. A few personal letters to teachers and others will be found productive of good results.

6. Appoint a secretary. Let a report of each meeting be sent to the commissioner, giving names of all teachers present, names of those who take part, the number of school officers present, and the whole number of persons present. A book will be provided for the secretary, in which to record the proceedings and statistics of each institute.

7. Put forth special efforts to secure the attendance of school officers and patrons. Give them a place on the program, and invite them to take part in the discussions.

8. Have good music. An institute without music is an institute deprived of charms and inspiration.

9. Aim to hold at least five institutes in your township. Let the first one be held not later than the first Saturday in November. It is suggested that one be held each month.

10. Lead the way to spirited discussions, endeavoring to have all take part.

11. Printed programs serve a good purpose. A collection might be taken up to defray the necessary expenses.

12. Try to reach the public. As a means to that end, let an "Educational Rally" be held in every township of the county the present school year. Advertise it thoroughly in the local papers and by having it announced in all the schools of the township. A program for such a meeting will follow. Of course, it may be modified. Go to work with vigor in this direction, and you will be pleased with results. Hold it in the evening at some place centrally located.

13. There should be two sessions of each institute—one of three hours in the forenoon and one of two and one-half hours in the afternoon. At least one hour of one session should be devoted to White's School Management.

14. Encourage teachers to bring classes before the institute to illustrate methods.

UNIFORM PROGRAMS.

First Institute.

1. Primary Reading.
   (a) Aims.
   (b) Methods.

2. The Course of Study.
   (a) The good it has already done.
   (b) The good it may do.
   (c) Do pupils understand the plan?
   (d) Urging pupils to complete the course and get diplomas.

3. Penmanship.
   (a) Importance.
   (b) Is it neglected?
   (c) Methods.
   (d) Importance of care and neatness.

4. Morning Exercises.
   (a) Object.
   (b) Material to use.
   (c) Importance of variety.
   (d) Effect on the school.

5. Mistakes in Teaching.
   (a) In Aim.
   (b) In discipline.
   (c) In method.

6. Cheerful School Rooms.
   (a) Importance.
   (b) How make them cheerful?
   (c) What can the teacher do?
   (d) What can pupils do?
   (e) What will school boards do?

White's School Management, pages 1-47.

Second Institute.

1. Reading in the Higher Grades.
   (a) Aims.
   (b) Methods.
   (c) Supplementary work.
   (d) Cultivating a taste for good literature.

2. Graduating Exercises in the District Schools.
   (a) Importance and benefits.
   (b) How to make them successful.

3. Elemetary Language Work.
   (a) Is it neglected?
   (b) Work in connection with reading lessons.
   (c) Using selected words in sentences.
   (d) Reproduction stories, stories from pictures, etc.
   (e) Importance of forming the habit of using correct language early in life. How?

4. District Libraries.
   (a) Importance.
   (b) How to obtain them.
   (c) What can the teacher do?

White's School Management, pages 48-102.

Third Institute.

1. Teaching Temperance.
   (a) Importance.
   (b) Methods.
   (c) "Stimulants and Narcotics." Is this subject effectively taught in the schools?
   (d) Special temperance exercises.

2. The Debt we Owe to the Schools.

3. U. S. History.
   (a) Purpose.
   (b) Methods.
   (c) Aids.
   (d) Mistakes.

4. Teach Patriotism.
   (a) Why?
   (b) How?

5. School Hygiene.
   (a) Importance of applying laws of health.
   (b) What constitutes good sanitary conditions at school?
   (c) Cleanliness, proper positions, care of eyes, exercises.
   (d) Care of out-buildings.
   (e) Pure air. Give pupils more of it.

White's School Management, pages 105-153.

Fourth Institute.

1. Arithmetic in the First Four Grades.
   (a) What should be taught.
   (b) Methods.
   (c) Devices.
   (d) Importance of thoroughness here.
   (e) Drill work. Is enough of it done?

2. The Use of Language Tablets.
   (a) Advantages.
   (b) How to use.

3. Moral Training.
   (a) Importance.
   (b) Ends.
   (c) Means.
   (d) Does it receive due attention?

4. Importance of Daily Preparation on the Part of the Teacher.

5. School Discipline.
   (a) Ends.
   (b) Means.
   (c) Elements of governing power.

White's School Management, pages 154-190.

Fifth Institute.

1. Primary Geography.
   (a) What to teach.
   (b) Methods.
2. Characteristics and advantages of a good daily program.
3. Needed School Legislation.
4. Spelling.
   (a) Oral.
   (b) Written.
   (c) Advantages of each.
   (d) Is it true that the schools of today do not turn out as good spellers as did the schools of forty years ago?
5. Is Corporal Punishment Necessary to Good Discipline?
6. How to Improve the School Grounds.

White's School Management, pages 191-231.

GENERAL.

Many schoolrooms have been cleaned, beautified, and made more home-like, and always with gratifying results.

Teachers, school officers, and patrons are justly entitled to commendation on account of their efforts for the good of the schools. In most cases coöperation and encouragement have come as a result of suggestions and work by the commissioner.

Mendon, Mich.

SCHOOLCRAFT COUNTY.

JENNIE S. PUTNAM, *Commissioner.*

LIBRARIES.

Our town schools possess large and well selected libraries. The country schools are not very generally supplied with them, but those that are have chosen good books.

PATRIOTISM.

The wave of patriotism has reached most of our schools. Very few have purchased flags, but patriotic songs and pieces receive more attention than formerly.

EXHIBITS.

We have never had a fair in this county, but for the last two years have had the fall school exhibit. We feel very proud of the work shown there, and our only regret is that not more of the country schools can be induced to take part.

TEACHERS' MEETINGS.

Aside from the institutes, and the meetings of the teachers from the graded schools, very little has been done here in the way of teachers' meetings. There are schools enough now, however, and good enough roads, so that the matter could receive more attention. They are too valuable an aid to the teacher to be held at so irregular and infrequent intervals.

EXAMINATIONS.

Our last legislature did much for our schools, but there still remains work to do. We have not yet a guarantee for honesty and efficiency in the conducting of county examinations. Certificates can still be granted to teachers (?) whose papers, with good liberal marking, will not reach an average of fifty, and whose lack of general knowledge is appalling. Such people were granted certificates last year, and by boards every member of which is eligible to election under the new law. In counties, too, where there was no dearth of teachers to justify such an imposition on the public.

The only solution is the abolition of local boards and the substitution of something like the Ontario system. We need to make professional training a requirement for certificates. With the teaching force so numerous that every vacancy has scores of applicants, it would not be unreasonable to ask for some professional skill, some knowledge of the work they are hired to do, from those who aspire to fill the vacancies. The hardship this would entail on the inexperienced and incompetent teacher, is not comparable to that now entailed on our children by those same teachers—teachers, too, who may have passed a brilliant examination. Knowledge of the subject to be taught is one of the prime requirements. Knowing how to teach it is another, and entirely different, but equally essential requirement.

GENERAL.

The civil service system should be applied to schools. That an intelligent, cultivated, and successful teacher, whose work has given perfect satisfaction, should be compelled to leave town and make a new beginning elsewhere, at the mere whim of an ignorant partisan board, is, to say the least, rating the profession pretty low. Legislation unfortunately cannot mould public opinion, and so long as public opinion will elect on school boards the ignorant, the bigoted, the ward politician, and, worst of all, the narow sectarian, so long we shall be compelled to see, as we so often do, our best teachers discharged and their places filled by unworthy ones.

Manistique, Mich.

SHIAWASSEE COUNTY.

E. D. DIMOND, *Commissioner.*

EXAMINATIONS.

We have held in one county during the last year, six teachers' examinations. I think we shall hold but three during the coming year. Applicants for first and second grades who fail in part of the branches, are allowed to rewrite in the remainder at the next examination at which such certificates can be granted. Applicants for third grades who fail on some branches, are required to rewrite on all branches. We are able to follow our schedule and to carry out the instructions from the Department.

TEACHERS' MEETINGS.

Several local meetings have been held during the year. The attendance of both patrons and teachers was usually very large. Interest in school matters was awakened and much good in general derived from the meetings. We expect to hold six local meetings during the coming school year.

Our institutes have been very helpful to our teachers in the past, and we are all looking forward to the coming one with much interest. Teachers ought to be required to attend the institute and, if not in attendance, to furnish a reasonable excuse for non-attendance.

LIBRARIES.

An interest is now being awakened in regard to libraries. Several schools have begun the good work, and we expect to see much more done during the coming year than was done in the past year.

GENERAL.

Special effort is being made to cause our teachers to become familiar with the State Manual and Course of Study, and to carry out the work outlined in it. A portion of each visit is spent in quizzing some grade to ascertain if the work of the grade is being done. The teacher should be judged largely from the *results* of his work.

Corunna, Mich.

TUSCOLA COUNTY.

T. J. REAVEY, *Commissioner.*

EXAMINATIONS.

Two regular and three special examinations have been held during the year, the specials being held in September, March, and April. At these examinations certificates of the different grades were granted as follows; viz., one first grade, thirty-seven second grade, and two hundred three third grade of the different classes.

TEACHERS' MEETINGS.

Monthly teachers' meetings have been held at eight different places in the county. Each local association is independent in the general management of its program, etc., but all follow the same general line of work. These meetings have been attended by many of our teachers, and the excellence of their work attests the help received. We expect to push this feature the coming year.

Our institute held at Vassar, conducted by J. W. Simmons, assisted by Mr. Goddard and Cora D. Martin, was one of the most successful and pleasant ever held in the county. The work of the instructors was practical and helpful, and of such a character as could be used in our schools. The division of the institute into sections, is the solution of the question of how to fit the work to all.

PATRIOTISM.

Through the efforts of the teachers, principally, many of our schools have procured a U. S. flag and on all suitable days "Old Glory" floats proudly, in some townships over every schoolhouse. In opening exercises, by singing patriotic songs at public exercises and in the school room, by giving the stars and stripes a prominent place in the decorations, by appropriately observing national holidays, and by a judicious use of patriotic recitations, readings, and incidents, much has been done to arouse a healthy spirit of patriotism.

SPECIAL DAYS.

There is a growing disposition among our teachers to observe and make the most of special days. Washington's and Lincoln's birthlays have their lessons for American boys and girls; and during the past year many of our teachers have taken advantage of these occasions to make lifelong impressions on the minds of their pupils, and at the same time call out the patrons and arouse in them a deeper interest in school matters. Some weeks before Arbor Day a circular was sent out calling attention to the

necessity for an observance of the day and outlining a program, which resulted in a majority of our school grounds being supplied with a nice rows of trees; others have been graded, fenced, and otherwise much improved. We find that an observance of special days is of much practical benefit to teacher, pupil, and parent.

LIBRARIES.

Nearly fifty per cent of our schools are supplied with a $5 or $10 library. Most of them have been secured by means of a social or entertainment gotten up by the teacher and pupils, and before the close of another year we expect to have a working library in nine-tenths of the schools of the county.

EXHIBITS.

School exhibits were made at the three fairs held in this county. The exhibit at each was divided into three classes as follows: the first class included that which was entered merely for exhibition, such as apparatus, samples of special work, etc.; the second class was for graded schools, while in the third class was shown the work of the district schools. Two prizes for each of the second and third classes were given, the first prize in each class being $10 and the second $5. In connection with each exhibit, an oratorical contest was had in which a scholarship at the Washington School of Oratory and the International Business College were offered as prizes for the best oration delivered on Children's Day (the last day of the fair). Every graded school and many of the district schools made exhibits which were very creditable, and served to make the educational exhibit one of the most pleasing, attractive, and interesting features of the fair.

GENERAL.

All or nearly all of our district schools are graded. In the county manual published and sent out by the commissioner, the State Course of Study is arranged for Harper's series of books, which is practically uniform in the county. Two lists of questions for promotion from each grade were sent out at the end of the winter term and at the close of the year. During the year one hundred fifty-one wrote on the eighth grade examinations and a good percentage passed. Several schools have taken up the Pupils' Reading Circle work and some have completed the course. Through this and other ways a good interest has been created, so that in some townships every school has a library, and "Old Glory" floats proudly over schoolhouses well supplied with all needed apparatus.

I am pleased to say that the interest in our schools is on the increase. Educational views are growing broader, the *fossils are decorating the shelves*, more progressive men are being elected as school officers, and an era of advanced school sentiment is upon us.

Caro, Mich.

VAN BUREN COUNTY.

J. A. O'LEARY, *Commissioner.*

EXAMINATIONS.

During the year we have held five examinations, at which some four hundred fifty candidates for certificates were present. About forty-four per cent of this number were successful. Some changes in the method of conducting the work have been made. We now have two days for all grades of certificates, which gives better results than the old way of only one day for third grade. The law allowing only three third grades to be granted to certain teachers, will work no hardship in this county, as many are already at work at the extra studies required for second grade. The better class of teachers are willing to qualify themselves for the higher certificate.

TEACHERS' MEETINGS.

The county association held but one meeting. This was attended by one hundred twenty-five enthusiastic teachers from every part of the county and proved of great benefit in arousing the professional spirit of the teaching force. Dr. Boone's lecture on "The Present Tendencies of Education" was well received. At the beginning of the year a series of township "Rallies" was planned. Good people from the different vocations were invited to take part. Questions that directly concerned the patron and the school were discussed. As a result the meetings were well attended, enthusiastic, and met with popular approval. They will be continued the ensuing year.

During July a three weeks' institute was held at South Haven. We were fortunate in having Prof. C. H. Gurney for conductor and Superintendents A. D. Prentice and E. A. Aseltine as instructors. There were over one hundred teachers in attendance. The work done was practical and of a kind that proved a benefit to the teacher in every day school work. Many of our young teachers were greatly benefited by the institute, and made a grand success of their first year in the school room.

PATRIOTISM.

The teaching of patriotism has received considerable attention the past year, mostly in connection with the observance of special day exercises. Many of the schools took a prominent part in the program on Memorial Day. Before the end of the coming school year it is hoped that the stars and stripes will float from every school building in the county.

LIBRARIES.

In a circular mailed to directors the first of the year considerable emphasis was placed upon the need of a good working library in each school, and the suggestion was made that the district help the matter along by a small appropriation. Quite a number of districts acted upon the suggestion and voted a sum of money for such purpose. In a circular sent to teachers they were urged to make an effort to secure a library by means of entertainments, socials, etc. Many of the teachers were loyal to the work and, as a result of these efforts, about forty district schools have the nucleus of a working library. I hope in one year from now to see two-thirds of the schools in possession of a library.

SCHOOL BUILDINGS.

As a whole the school buildings of this county will compare favorably with those of any county. A few are in miserable condition. Three new ones were built in 1894, and several were repaired.

GENERAL.

It is gratifying to note that the friends of good schools received substantial recognition from the legislature of 1895. The compulsory school law (that is compulsory), the law empowering directors to purchase some of the necessary appendages, the law requiring the flag of our country to float from every school building in Michigan, are but steps in advance.

With a good, earnest, energetic corps of teachers, it is expected that the ensuing school year will be a most successful one.

Paw Paw, Mich.

WEXFORD COUNTY.

GEO. E. HERRICK, *Commissioner.*

In addition to my statistical report I would say that I visited my schools early in the year, carrying with me a supply of paper, pens, ink and pencils, and supplied whole schools with same. The result was that nearly every school in the county has made good progress in writing, especial attention having been given to letter writing. The expense of the experiment was not large, and the supervisors liberally paid the bill.

The year has been a fairly successful one.

Cadillac Mich.

QUESTIONS FOR EXAMINATION

FOR

STATE AND COUNTY CERTIFICATES

I. STATE EXAMINATION AT LANSING, JULY, 1895.
II. STATE EXAMINATION AT LANSING, DECEMBER, 1895.
III. REGULAR COUNTY EXAMINATION, MARCH, 1895.
IV. REGULAR COUNTY EXAMINATION, AUGUST, 1895.
V. REGULAR COUNTY EXAMINATION, OCTOBER, 1895.

STATE EXAMINATIONS.

I. QUESTIONS PREPARED BY STATE BOARD OF EDUCATION FOR EXAMINATION HELD AT LANSING, JULY, 1895.

ALGEBRA.

1. At what time after 8 o'clock will the minute hand be 10 minute spaces ahead of the hour hand?
2. Find the value of x:

$$\frac{\sqrt{3x+1}+3}{\sqrt{3x+1}-3}=\frac{\sqrt{7x+8}+4\frac{1}{2}}{\sqrt{7x+8}-4\frac{1}{2}}$$

3. What is the distance passed through by a ball that falls 50 feet and each time rebounds half the distance?
4. There is a number consisting of three digits, the first of which is to the second as the second is to the third; the number itself is to the sum of its digits as 124 to 7; and if 594 be added to the number, the digits will be reversed. What is the number?
5. Give ten principles of proportion.
6. The sum of two numbers is 11, and the sum of their cubes is 407. What are the numbers?
7. (a) How do you solve a prime quadratic equation?
   (b) How do you solve a complete quadratic equation of the form of $x^2 \pm px = \pm q$?
8. Find the products of the following:

$$\tfrac{2}{3}\sqrt[3]{4} \text{ by } \tfrac{3}{4}\sqrt{6}; \text{ also } 5\sqrt{a^2x} \text{ by } 3\sqrt{2a^3x}.$$

   Give rule for the above.
9. What is the meaning of a positive fractional exponent? What is the meaning of a negative fractional exponent? Express the following without fractional or negative exponents:

$$3a^{\frac{1}{2}},\ 5a^{\frac{2}{3}}x^{-\frac{3}{4}},\ 9(a+b)^{\frac{1}{2}},\ \frac{3a^{-\frac{1}{2}}(x+1)^{-\frac{3}{4}}}{4m^{-\frac{2}{3}}(x-1)^{-\frac{1}{2}}}$$

10. Give five principles of factoring.

ARITHMETIC.

1. A pole 63 feet long was broken in two unequal pieces, and 3-5 of the longer piece equaled $\frac{3}{4}$ of the shorter. What was the length of each piece? Give good solution.
2. Two men hire a pasture for $20. The one puts in 9 horses, and the other puts in 48 sheep. If 18 sheep eat as much as three horses, what must each man pay?

3. A boat whose rate of sailing in still water is 14 miles an hour, was accelerated 3½ miles per hour in going down stream, and retarded the same distance per hour in coming up. It was five hours longer in coming up a certain distance than in going down. What was the distance?

4. (*a*) How do you read any decimal? (*b*) How do you express decimally any common fraction?

5. Mrs. B. D. Ross bought of Cook & Co., Philadelphia, 14 yards of silk at $1.37½ a yard, 45 yards of sheeting at 7 cents a yard, 9 handkerchiefs at 25 cents apiece, 3 pairs of kid gloves at $1.12½ a pair, and 5 neckties at 50 cents each. Make out and receipt this bill as clerk for Cook & Co.

6. To find the height of a tree, I erected a stick 3 feet high, which cast a shadow 1 foot, 9.5 in. The shadow of the tree at the same time was 48 ft. 10 in. What was its height?

7. If a horse tied to a stake by a rope 7.13 rods in length, can graze upon just one acre of ground, how long should the rope be to allow him to graze upon 6½ acres?

8. (*a*) The height of a cubical vessel is 1 foot, 6 inches. How high must another cubical vessel be to hold four times as much? (*b*) If a man 5 ft. 6 in. in cubical vessel be to hold four times as much? (*b*) If a man 5 ft. 6 in. in height is 6 ft.

9. Twenty per cent of a barrel of oil leaked out. What per cent must be gained on the remainder, that a gain of ten per cent may be realized on the cost of the oil?

10. How many bushels of wheat will a bin hold that is 5 feet long, 4½ feet wide, and 4 feet deep?

ASTRONOMY.

1. What causes the difference between a sidereal and solar day?

2. How is the size of the earth determined? Why is it believed to be flattened at the poles?

3. What is the solar system? Name the planets in the order of their size. What is the shape of the orbits of the planets? Why?

4. Explain the following terms: ecliptic, summer solstice, zodiac, spring equinox, perihelion, parallax, aerolite, comet.

5. What is the theory as to the cause of the sun's heat? Discuss sun spots. What is the distance of the sun from the earth?

6. Describe the planet Jupiter, its moons and seasons.

7. How may the latitude of a place be determined? Explain the phases of the moon.

8. What are the causes of eclipses? State briefly the method of calculating the time of an eclipse.

9. Describe the rings of Saturn.

10. Explain the importance of spectrum analysis in astronomical research. State the fundamental principles of spectrum analysis. What is the nebular hypothesis?

BOTANY.

1. Name five plants which flower but once during their period of existence, and write the botanical term which indicates the duration of the life of each one named.

2. Where in the stem is the oldest tissue in cotyledonous plants?

3. What organ mainly supplies plants with liquid food? With gaseous food? In what organ does assimilation in plants take place?

4. What is the part of a flower that bears pollen? What part bears ovules? What is fertilization?

5. In the classification of leaves, what are the bases of classification? Illustrate with drawings.

6. If a plant belongs to the ranunculaceae family, what distinguishing points would you expect to find about it?
7. Define receptacle, multiple fruits, habitat, root, parallel veined, pericarp, rhizoma, stolons, inflorescence, hybrids.
8. How would you determine whether a plant was an endogen or an exogen?
9. Write on motion of plants.
10. Name and describe each part of the flower and tell how they are arranged.

CHEMISTRY.

1. What properties of charcoal make it a purifier?
2. How is copper nitrate prepared? What is its color?
3. If a cold tumbler be held over the flame of a candle, water is deposited upon the inside of the glass. Account for the formation of the water. Now, if the water be acidulated and a piece of zinc immersed in it, the water will disappear. What becomes of it?
4. A mass of pure carbon weighing in a vacuum one pound is burned in the open air. What will be the weight of the resulting compounds weighed in a vacuum?
5. Define basicity of acids. How is the name of a salt derived from that of an acid?
6. Given ammonium carbonate and nitric acid. How will you prepare laughing gas from the materials?
7. Translate this equation into words: $2H_2SO_4+C=2SO_2+2H_2O+CO_2$. Show that this is a true equation.
8. If you have a liter of gas at 0°, what will it become at 30°?
9. Why is the flame of a Bunsen burner less luminous than an ordinary gas flame? What is a combustible substance? Is oxygen combustible?
10. Name the characteristic properties or iodine, hydrogen, potassium, Cl, C, Na.

CIVIL GOVERNMENT.

1. What laws were enacted at the last session of the Michigan Legislature of especial interest to teachers?
2. What do you understand by the terms common law, constitutional law, and statute law?
3. Which of the two houses of Congress has jurisdiction relative to impeachments? Which with reference to executive nominations to office? When does the Chief Justice of the Supreme Court preside over the Senate?
4. What are the powers and duties of the Civil Service Commissioners? Of the Inter-State Commerce Commissioners?
5. What are the duties of an administrator? Of a trustee? Of a guardian? Of an executor?
6. What do you understand by admiralty jurisdiction? What is referred to in the term, Letter of Marque?
7. What is the present law of Michigan relative to naturalization?
8. When and for what purpose was a Court of Claims established?
9. What do you understand by the terms electoral college, executive session, political appointment?
10. Name the elective officers of a county, and state the duties of each officer.

GENERAL HISTORY.

1. Give a brief review of the cause, character, and conclusion of the recent Japan-Chinese war.
2. What can you say of the following persons: Alexander Humboldt, Nicholas Copernicus, Baron Liebig, John Kepler?

3. What terms of settlement were presented by Germany and accepted by France at the close of the last war between these nations? In what way has that settlement kept in existence the enmity between these two nations?
4. Give a brief review of the war between the United States and Mexico, giving its origin, the terms upon which it was concluded, and such comments as you may desire to add.
5. Explain briefly the significance of the following: Salamis, Talleyrand, Kossuth, Trafalgar, Calvin, Pharsalia, Gutenberg, Sedan, Phidias.
6. Refer to some leading events or famous accomplishments in the lives of the following persons: Louis Hennepin, Edward Jenner, Sir William Herschel, Luigi Galvani, Louis Daguerre.
7. State what you can of the present political parties of Great Britain, as to the sympathies, purposes, and polices of each.
8. Give some incidents of interest or especial purposes in the public lives of Louis Adolphe Thiers, Richard Cobden, Von Moltke.
9. Give a brief sketch of the origin and efforts of the organization known as the Fenian Brotherhood.
10. Give a sketch of the life of Napoleon I, keeping as near as possible in the order of their occurrence the principal events connected with his carreer.

GEOGRAPHY.

1. What important purposes are assisted, from your point of view, through the teaching of geography in our schools?
2. What change has occurred in the industrial life of Alabama during recent years? What caused this change?
3. Name the several provinces of Canada and give the important industries of each.
4. Where is the "International Date Line," and why is it so called?
5. Where are the several great ship canals now in existence located? Name the nations controlling such as you give and state the purposes served at present by these canals.
6. What physical conditions have favored the formation and perpetuation of one nation instead of several in the area occupied by the United States?
7. Indicate several of the more important conditions and relations which determine and affect climate.
8. Review as fully as you can the motions of the air known as winds; giving causes, extreme variations, and the beneficial purposes which winds directly and indirectly serve?
9. In what countries has the production of wool largely increased during recent years? What other countries besides the United States are large exporters of wheat to European markets?
10. In what way does the physical formation of a country affect its industries, its commerce, the character of its people, and the tendencies of its civilization? Make your answer comprehensive, and illustrate it by reference to countries of varying characteristics.

GEOLOGY.

1. Define (*a*) friability; (*b*) erosion. What is the commonly accepted theory of petrifaction?
2. Name three oceanic forces that are making changes in the earth's crust.
3. In what is anthracite coal similar to the diamond? In what different? What is the theory as to the origin of petroleum?
4. Give in order of age the three oldest ages of rock formation. What are the distinguishing characters of purely igneous rocks?
5. State causes why some great rivers have deltas while others do not.
6. Describe the mode of accumulation of peat.

7. In what era does the age of invertebrates occur? What are the other subdivisions of the era?

8. How were gorges, canons, and ravines formed? Name some noted examples. How were the gravel ridges of America produced?

9. Make a drawing to show how water is forced to the surface in flowing artesian wells, and name each formation shown in the diagram.

10. What are the two principal divisions of crystalline rocks? If a rock is composed of quartz and mica, what is its name? What, if of hornblende and quartz?

GEOMETRY.

1. Demonstrate: The volume of a spherical segment of one base is $\pi A^2 (R - \frac{1}{3} A)$, A being the altitude of the segment, and R the radius of the sphere.

2. Demonstrate: In an isosceles spherical triangle, the angles opposite the equal sides are equal; and conversely, if two angles of a spherical triangle are equal, the triangle is isosceles.

3. (*a*) Can there be a spherical triangle whose sides are 78°, 113°, and 31°? Why?
(*b*) Can there be one whose sides are 152°, 136°, and 148°? Why?
(*c*) Can there be a spherical triangle whose sides are 52°, 126°, and 140°? Why?

4. Demonstrate: A spherical angle is equal to the measure of the diedral included by the great circles whose areas form the sides of the angle.

5. What is the area of the lateral surface of a right hexagonal pyramid, the base of which is inscribed in a circle whose diameter is 20 feet, the altitude of the pyramid being 8 feet.

6. When is a line divided in extreme and mean ratio?
Problem: To divide a line in extreme and mean ratio and demonstrate the solution.

7. Demonstrate: Parallellograms having equal bases and equal altitudes are equivalent.

8. Demonstrate: If a perpendicular is let fall from any point in a circumference upon a diameter, this perpendicular is a mean proportional between the segments of the diameter.

9. Demonstrate: The area of a regular polygon is equal to one-half the product of its apothem into its perimeter.

10. Demonstrate: If the opposite sides of a quadrilateral are equal, the figure is a parallelogram.

GRAMMAR.

1. Give the syntax of *that* in each of the following sentences:
(*a*) Fall he *that* must, and live the rest.
(*b*) Not a word of *that*, if you please.
(*c*) I heard Mary's essay, but not *that* of Helen.
(*d*) It is believed by many *that* some of the stars are inhabited.

2. Give the syntax of *as* in each of the following sentences:
(*a*) *As* thy day is, so shall thy strength be.
(*b*) Is she *as* tall *as* her sister?
(*c*) This gold watch is presented to you *as* a token of esteem.
(*d*) Such gray skies *as* these, portend rain.

3. Give the syntax of the italicized words in each of the following sentences: [20 credits.]
(*a*) A ring he hath of mine *worth* 40 ducats.
(*b*) A silence *like* that of death pervaded the house.
(*c*) Be not *like* dumb driven *cattle*.
(*d*) He commanded the *men to halt*.

4. (1) Build thee more stately mansions, O my soul.
(2) As the swift seasons roll!
(3) Leave thy low vaulted past!
(4) Let each new temple, nobler than the last,
(5) Shut thee from heaven with a dome more vast,
(6) Till thou at length art free,

(7) Leaving thine out-grown shell by life's unresting sea!
(a) Parse *swift* and *roll*, line (2).
Parse *each*, *nobler*, and *than*, line (4).
Parse *length* and *art*, line (6).
Parse *leaving* and *unresting*, line (7).
Give principal parts of *leave*, line (3).
(b) Analyze or diagram first line and last four lines.
[40 credits.]

5. Construct sentences containing each of the following and underscore the illustration: [20 credits.]
(a) A reflexive pronoun.
(b) A verbal.
(c) The past perfect tense of a verb.
(d) A subordinate conjunction.
(e) A factitive, or objective complement.

LITERARY TEST.

The examination in the studies rhetoric, literature, penmanship, reading, and one-half of the orthography, will consist of an essay of not more than 3,000, nor less than 2,000, words on some one of the following topics, which will be designated on the day of examination:

A Review of Oliver Wendell Homes and his works.

The History of Michigan from the earliest period to 1837.

The Marble Faun: (a) purpose of the novel; (b) plot; (c) principal characters briefly described; (d) literary style displayed; (e) general impressions.

ORTHOGRAPHY.

[One-half of the examination will be marked on the spelling in the literary essay.]

1. Explain carefully the difference in sound between ŏ and ä.
2. Give all the consonants that are ever accompanied with diacritical marks.
3. How are mutes distinguished from semi-vowels in utterance?
4. State four requirements of good articulation.
5. Mark diacritically the pronunciation of the following words: idea, either, fruit, geyser, genuine, program, hygiene, trachea, Tuesday, saccharine.

PHYSICS.

1. (a) Explain total internal reflection.
(b) What is meant by dispersion of light?
2. (a) What is meant by the index of refraction?
(b) Give laws of refraction of light.
3. (a) What is thermo-dynamics?
(b) Define latent, sensible, and specific heat.
4. (a) Give the facts of gravity and the law of weight.
(b) If a body weighs 120 lbs. 2,500 miles below the surface of the earth, at what distance above the surface will it weigh 80 lbs?
5. (a) Explain the action of the mercury barometer. When is pressure greater, in fair or rainy weather?
(b) Give Mariotte's law.
6. Deduce from the laws of falling bodies the formula for the velocity of spouting liquids ($v = 8.02\sqrt{h}$), h being vertical distance from the center of the orifice to the surface of the liquid, and g being 32.16 ft.
7. (a) State Archimedes' principle.
(b) Give Pascal's law and the rule for determining lateral liquid pressure.
8. (a) Define energy, foot-pound, dyne, erg, and horse-power.
(b) Deduce the formula for measuring kinetic energy, when weight and velocity are given.
9. (a) How is it proved that air has weight?
(b) What is the weight of air in a room 30 feet long, 20 feet wide, and 10 feet high?

10. (*a*) How much water per hour will be delivered from an orifice of 2 inches area, 25 feet below the surface of a tank kept full of water, not allowing for resistance?
    (*b*) Would you teach physics below the high school? Give reasons for your answer.

PHYSIOLOGY AND HYGIENE.

1. How are the bones of the cranium united? Describe the knee pan and its use.
2. What two sets of muscles do we usually find together, and how does each set act toward the other. Locate biceps, triceps, tendon of Achilles, diaphragm.
3. Should we breathe through the mouth or throat? Why? What changes does breathing produce in the blood? Where and how do these changes occur?
4. Why are cold draughts undesirable? What is ventilation? Describe some good method.
5. Describe how disinfectants should be used. Explain how they effect their purpose.
6. What three kinds of blood vessels are there? Explain the anatomy and use of each.
7. What is the office of the brain? Of the nerves? What are the functions of the spinal cord?
8. What are narcotics? Stimulants? Name some of their effects on the nerves. What is nervousness?
9. Where is the nerve of hearing? Why is a blow upon the side of the head or over the ear dangerous?
10. Where is the nerve of the eye? What is the iris? How many muscles are there to each eye? Uses? Where should the light come from when we read?

SCHOOL LAW.

1. What kind of text-books in regard to instruction in physiology and hygiene may district schools use?
2. State the provisions of the law for the examination by county commissioner of schools, of candidates for admission to the Agricultural College.
3. What boards of education can take advantage of the new law for the compulsory education of children, and for the punishment of truancy? State the important features of the law.
4. Can any school district have a library? How? Who has charge? Who furnishes statement for apportionment of library money?
5. Who fills vacancies in the office of school examiner? Give qualifications necessary for eligibility to office of commissioner of schools. In what counties do second grade certificates qualify a commissioner?
6. Give qualifications necessary for examiners. Give dates for regular examinations of teachers. Give dates of the optional regular examinations.
7. Give the origin and history of the so-called Liberal Republican party.
8. What are some of the school duties of the supervisor?
9. What is done with money raised by the one-mill tax?
10. Is a person who owns property liable to taxation a legal voter at a school meeting? Can he vote to raise money? Give reasons for your answer.

THEORY AND ART.

1. Name five of the most noted of the world's greatest educators now dead.
2. Have you read the report of the Committee of Fifteen? What are its three great divisions?
3. Give several reasons why the study of United States history should be given an important place in the curriculum.

4. On what ground does the State base its right to levy school tax on the property of those who have no children?
5. Explain the value of schoolroom decorations, and name some suitable ones.
6. Name five books you have read on educational topics.
7. Give in brief the general plan and purposé of any one of them. [20 credits.]
8. Suggest any amendments to the school law which you think would be beneficial to the educational interests of the State.
9. What is meant by apperception?

U. S. HISTORY.

1. What was the Resumption Act of 1879? What were the provisions of the Sherman Silver Bill, for the repeal of which a special session of Congress was called?
2. Distinguish as to the proper application and reference of the historical terms, Provincial Congress, Continental Congress, Federal Congress.
3. In what way did the existence of slavery here first cause political contention between slavery and anti-slavery states? How was the disputed question temporarily disposed of?
4. With what national policies are the following names historically associated: James Monroe, John C. Calhoun, James G. Blaine?
5. What assault committed in the United States Senate added to the hostility between the north and south? What discussion led to the assault?
6. Give a brief review of several periods of business prostration known as "panics" which have occurred in our country during the past forty years.
7. Give the origin and history of the so-called Liberal Republican party.
8. What is meant by the term "New South?" What can you say of Henry W. Grady?
9. Why was the income tax law recently enacted declared unconstitutional?
10. Give a brief review of the history of the Mormon church from its origin to the present time.

ZOOLOGY.

1. What is the principle of zoological classification? Discuss the geographical distribution of animals.
2. Classify the oyster. Describe its respiratory and circulatory apparatus, and tell something of its life.
3. Define and describe the following terms as used in zoology: antenna, oil-sac, gills, gizzard, compound eye, diptera, oviparous, larva, swimming bladder, pupa, blow-holes, radiata, articulata.
4. Explain process of digestion in ruminants. In cetacea. Compare general characters of ruminants and carnivora.
5. Describe the shapes and dispositions of the toes in birds. Name a bird belonging to each of the following orders: scansores, passeres, raptores, natatores, grallatores.
6. Describe metamorphosis in the hymenoptera. In batrachia.
7. Describe the poison apparatus in poisonous snakes. Which is considered higher in the scale of existence, pisces, reptilia, or batrachia? Why?
8. Why are there some animals called cold blooded and others warm blooded? What differences exist in the blood, if any? Describe the circulation in fishes.
9. Name six fur-bearing animals and give the classification of each. Classify the elephant, ant, deer, ape, fly.
10. Describe the foot of the camel. Name certain animals which have a peculiar or special means of defense.

II. QUESTIONS PREPARED BY STATE BOARD OF EDUCATION FOR EXAMINATION HELD AT LANSING, DECEMBER, 1895.

ALGEBRA.

1. If $a = 2, b = 3, x = 6$, and $y = 5$, what do the following expressions equal?

$$\sqrt{\{(a+b)y\}} + \sqrt[3]{\{(a+x)(y-2a)\}} + \sqrt[3]{\{(y-b)^2 a\}}$$

$$(ay)^3 (bx + a^2 + 3)^{\frac{1}{a}} - \frac{\{b(x-y)^{-1} - [(ax)^2 - 142]\} 20\,ay}{(b-a)^m}$$

2. When do you change the signs in removing a parenthesis? Why? In removing a parenthesis preceded by a minus sign, is the sign of the first term changed as well as the others?

3. Remove the marks of aggregation from

$$a - [b - \{c - (d - \overline{e - f})\}]$$

$$a + 2b - \{6a - [3b + (8x - \overline{2 + by} - x) + 4a] - 3b\}$$

4. Divide $\frac{x^3}{y^3} + \frac{5x^2}{12y^2} + \frac{39}{16}$ by $\frac{x}{3y^2} + \frac{1}{2y}$ and give the rule.

5. What is the H. C. D. of $10a^3b^2 + 10a^5 + 20a^4b$, $2b^3 + 2a^3$, and $4a^3b + 12a^2b^2 + 4b^4 + 12ab^3$? Give rule.

6. (a) Multiply $\frac{3c^{-2}x^3}{5a^5y^{-\frac{1}{2}}}$ by $\frac{2c^3x}{7a^{-3}y^{\frac{1}{2}}}$ and write the result without negative exponents.

(b) Divide $\frac{x^{-\frac{3}{2}} - x^{-\frac{1}{2}}}{2x^{-3}}$ by $\frac{x^{-\frac{3}{2}} - x^{-\frac{1}{2}}}{4x^2(x^{-\frac{3}{2}} - x^{-\frac{1}{2}})}$ and have the quotient in the integral form.

7. Divide $\frac{1}{2}\sqrt{\frac{1}{2}}$ by $\sqrt{2} + 3\sqrt{\frac{1}{2}}$ and give rule.

8. Solve $\frac{\sqrt{ax} - b}{\sqrt{ax} + b} = \frac{3\sqrt{ax} - 2b}{3\sqrt{ax} + 5b}$

9. If A and B together can perform a piece of work in 8 days, A and C together in 9 days, and B and C together in 10 days, in how many days can each alone perform the work?

10. A is indebted to B $1,000 and is able to raise but $600. With this sum A proposes to pay a part of the debt, and the interest at 8% in advance, on his note at 2 years for the remainder. For what sum should the note be drawn?

ARITHMETIC.

1. From your knowledge of circular measure and of the length of a degree of longitude at the equator, compute the circumference of the earth at the equator.

2. A man wishes his son to have $3,000 when he is 21 years of age. What sum must be deposited at the son's birth, in a savings bank which pays compound interest at the annual rate of 6%, so that the deposit shall amount to that sum when the boy becomes of age?

3. A tank which holds 200 gallons can be filled by one pipe in 15 minutes and emptied by another pipe in 40 minutes. If the tank is emptied and both are opened at the same time, how long will it take to fill it?

4. What will be the face of a 60 day draft purchased for $450, if the rate of exchange is ⅛% premium and the rate of discount 6%?

5. There is a circular park 250 rods in diameter, and within it is a circular lake 125 rods in circumference. What is the area of the park, exclusive of the lake?

6. What is the base of a triangular plot of ground, whose area is 5½ acres and whose altitude is 44 rods?
7. The weight of oak ashes is $\frac{1}{100}$ of the weight of the wood consumed, and the weight of the carbonate of potash contained in the ashes is .065 of the weight of the ashes. How many ounces of carbonate of potash are there in the ashes of 500 pounds of oak wood?
8. A hollow sphere whose diameter is 6 inches, weighs ⅛ as much as a solid sphere of the same material and diameter. How thick is the shell?
9. I wish to raise $550 by having my note discounted at a bank for 2 mos., 15 da. at 6%. What must be the face of the note?
10. I find that I owe A 50% more than I owe C, and B 33⅓ more than I owe A. Now, if I owe B $800 more than I do C, how much is my indebtedness to each?

BOTANY.

1. Describe briefly the growth of plants from the seeds.
2. Discuss the functions of roots and their mode of growth.
3. Compare the roots of sunflower, bean, and pea with those of Indian corn.
4. Discuss the structure and mode of growth of the stem. Compare the stem of the maple and Indian corn.
5. Describe some of the modified or derived forms of stems.
6. Name and describe all the parts of a leaf. Discuss the arrangement of leaves on the stem.
7. Write a chart of a typical flower, giving the principal subdivisions of each part.
8. Define inflorescence. What is meant by definite and indefinite inflorescence.
9. Describe fertilization. What is fruit?
10. Give the distinguishing characters of the crowfoot family.

CHEMISTRY.

1. What data are necessary to fix an atomic weight?
2. If 226 cubic centimeters of oxygen and 500 cubic centimeters of hydrogen, both at 110 degrees, be mixed and exploded, what will be the composition of the remaining gas, and what its volume at 0 degrees?
3. What is molecular volume and how is it expressed? Of what assistance is density in fixing molecular weight?
4. What group of atoms in every sulphate? In every hydrate? In every nitrate?
5. For what elements do the symbols Fe, Mn, and Cr stand? What is the effect of heat on MnO_2, $KClO_3$, and S respectively?
6. Distinguish between the properties of Co and Co_2, and tell how each destroys life. Give a test for each.
7. Is C a bleaching agent? Why? What is meant by oxidizing agents? By reducing agents?
8. Describe Marsh's test for arsenic. What is the limit of its delicacy?
9. Distinguish between washing soda and baking soda. Why is the latter better for baking than the former?
10. Distinguish between cast iron and wrought iron. Between wrought iron and steel?

CIVIL GOVERNMENT.

1. Through what means and when, under present State laws, would an applicant for citizenship from a foreign country, coming to Michigan, January 1, 1896, become a voter here?
2. What states compose the United States Judicial Circuit in which you live? What counties compose the Judicial District of Michigan in which you live?
3. Explain the terms, belligerent, extradition, contraband.

4. What officers constitute the Michigan State Board of Equalization? What are the duties of the board?
5. What do you understand by the terms, reprisal, embargo, privateer, blockade? What is a paper blockade?
6. State as fully as you can the laws of our State relative to marriage, including property rights retained and property obligations assumed in the legal marriage contract.
7. By whom is Michigan at present represented in the United States Senate? By whom is our State represented in the National House of Representatives?
8. What are the powers and duties of the United States officers—judges, attorneys, and marshals?
9. Give the political divisions in which you reside, from ward or township to State, inclusive.
10. State as fully as you can the duties and powers of the Governor of Michigan.

GENERAL HISTORY.

1. By whom has the office of Prime Minister of England been successfully filled during the past twelve years? Give some important events conected with each administration.
2. Give some facts connected with the life and labors of Count Tolstoi.
3. What were the so-called States of the Church? What is the present attitude of the Pope of Rome toward the government of Italy?
4. Give a brief review of the life and death of Thomas à Becket.
5. When, where, and by whom was established the first permanent French settlement within the present territory of Canada?
6. Give some important facts in connection with the formation of the present German Empire.
7. Give a sketch of the life of Father Marquette so far as it relates to early explorations and settlements in this country.
8. Give a sketch of the more important events in the life of Savonarola.
9. What form of government prevails in each of the several political divisions of South America?
10. Give a sketch of the cause, course, and participants in the Crimean war.

GEOGRAPHY.

1. Stated in the order of their importance, what subjects are included in the present study of geography which you deem of practical and culture value? Briefly indicate the value you attach to such subjects as you name.
2. Name the most important railroads of Michigan and give their several routes, including the principal cities through which and to which they run, and the more important freight business of such roads as you name.
3. Give a short sketch of The Netherlands, including the characteristics of the country, occupations of the people, its commerce, and leading cities.
4. What sections of the United States lead in the production of crude petroleum and natural gas? What sections lead in the production of coal and iron?
5. Explain what is meant by trade and anti-trade winds? Indicate the direction in which they blow and the cause of their deflection.
6. What are some of the leading industries of the following cities: Denver, Atlanta, Minneapolis, Duluth, Kansas City, Cleveland? Give some causes for the existence of the industries indicated in the cities named.
7. What would be the exact time of the arrival of a telegram at Buffalo which was sent from Boston at 10 a. m.? What would be the time of its arrival at Chicago, Des Moines, Denver, and San Francisco?
8. What is indicated by the term tropic? Why are the tropics of Cancer and Capricorn so called?

9. On what dates does the sun appear to be directly overhead at the equator at noon? What day is known to you as the longest in the year? What the shortest? During what period of time is the sun visible from the north pole?
10. Name as definitely as you can the divisions of land and water through which the equator passes, commencing at any named point.

GEOLOGY.

1. Discuss and account for joints, fissures, and mineral veins in the structure of rocks.
2. Account for the structure of stratified rocks, unstratified and metamorphic rocks.
3. What is erosion and what are its agents? By what means is the amount of erosion determined?
4. Define the terms fault, fossil, fumarole, canon, delta, drift, era, peat and eozoic as used in geology.
5. Explain the mode of accumulation of coal. What is the relation, as to geological time, of the carboniferous age and the reptilian age?
6. Discuss the formation of limestone caves.
7. What is the theory of geologists about a former great glacier in America? How extensive must it have been?
8. What animals characterize and what rock formations belong to the Triassic period.
9. How can feldspar be distinguished from calcite? What is the composition of granite? What is mica schist? What is the difference between slate and shale?
10. Discuss briefly primeval man in Europe.

GEOMETRY.

1. Demonstrate: If a perpendicular is erected at the middle point of a straight line,—
   (a) Any point in the perpendicular is equally distant from the extremities of the line.
   (b) Any point without the perpendicular is nearer the extremity of the line on its own side of the perpendicular.
2. If one line meet another, show that the two lines bisecting these supplemental angles are perpendicular to each other.
3. Demonstrate: If any transversal cuts two parallels,—
   (a) Any two corresponding angles are equal.
   (b) Any two alternate interior, or any two alternate exterior angles are equal.
   (c) The sum of any two interior angles on the same side of the transversal, or the sum of any two exterior angles on the same side, is two right angles, or a straight angle.
4. Problem.—To pass a circumference through three given points not in the same straight line. Demonstrate the solution.
5. From a point out of a given straight line to draw a line making a given angle with the first line. Explain.
6. Problem.—With a given radius draw a circle tangent to the sides of a given angle. Demonstrate the solution.
7. Demonstrate: The areas of similar polygons are to each other as the squares of any two homologous sides of the polygons.
8. Define a plane. What determines the position of a plane?
9. Demonstrate: The angle included by perpendiculars drawn from any point within a diedral to its faces, is the supplement of the diedral.
10. Demonstrate: In an isosceles spherical triangle, the angles opposite the equal sides are equal; and conversely, if two angles of a spherical triangle are equal, the triangle is isosceles.

GRAMMAR.

1. Explain the following terms used by various authors in connection with their treatment of adjectives; descriptive, definitive, specifying, qualifying, pronominal, limiting, numeral, proper.
2. State rules for the use of *shall* or *should* and *will* or *would*, giving sentences to illustrate the use of each.
3. Name four parts of speech usually employed to introduce subordinate clauses. Illustrate the use of each by a sentence.
4. Explain the use of the *copula* in grammar; what words are mostly used as copulas?
5. Parse the italicized words in the following sentence: "*For* a man *to give* his opinion of *what* he sees *but* in part, is an unjustifiable *piece* of rashness and folly."
6. Analyze or diagram: [20 credits.]

   The crow doth sing as sweetly as the lark
   When neither is attended; and I think
   The nightingale, if she should sing by day
   When every goose is cackling, would be thought
   No better a musician than the wren.

   —*Merchant of Venice.*
7. What rules for punctuation are illustrated by the marks given in the lines quoted in question 6. [5 credits.]
8. Give principal parts of think, sing, cackle, do, to be. [5 credits.]
9. Give the syntax of the italicized words in each of the following: [20 credits.]
   (*a*) He was now *about* ready to open his mouth.
   (*b*) She bade me *adieu.*
   (*c*) He came *after* I left.
   (*d*) He looks *as if* he were cold.
   (*e*) 'Tis with our judgments *as* with our watches, none go *just* alike, yet each believes his *own.*
   (*f*) Great Britain does not believe in the Monroe Doctrine *when* it prevents her from *stealing* the territory of a weaker nation.
   (*g*) Do you *dote* on examinations?

LITERARY TEST.

The examination in the studies rhetoric, literature, penmanship, reading, and one-half of the orthography, will consist of an essay of not more than 3,000, nor less than 2,000 words on some one of the following topics which will be designated on the day of examination:

The Ordinance of 1787.

Life and Works of Wm. Cullen Bryant.

"Pendennis:" (*a*) purpose of the novel; (*b*) plot; (*c*) principal characters briefly described; (*d*) literary style displayed; (*e*) general impressions.

ORTHOGRAPHY.

[One-half of the examination will be marked on the spelling in the literary essay.]

1. Mark diacritically the pronunciation of the following words: Tuesday, sloth, rude, Chicago, architect.
2. Explain carefully the difference in sound between û and ō̆
3. Give five prefixes and words illustrating their uses.
4. Explain the use of x in our language.
5. Define cognate, orthoepy, digraph, cedilla, tilde, as used in orthography.

PHYSICS.

1. Name the general, also the characteristic properties of matter.
2. Give the laws of motion. Define equilibrant.
3. A stone is thrown horizontally from the top of a tower 257.28 ft. high with a velocity of 60 ft. a second. Where will it strike the ground?

4. A pendulum 5 feet long makes 400 vibrations during a certain time. How many vibrations will it make in the same time after the pendulum rod has expanded half an inch?

5. (*a*) What is the object of experiments in the study of physics?
(*b*) What is the metric unit of weight?
(*c*) How is it obtained?

6. In one pan of a false balance, a roll of butter weighs 1 lb. 6 oz.; in the other 2 lbs. 4 oz. Find the true weight.

7. (*a*) Does it require more work to lift a barrel of flour into a wagon four feet high than to place it there by rolling it up a plank 12 feet long?
(*b*) Show why?

8. (*a*) State Archimedes' principle.
(*b*) How may it be experimentally verified?
(*c*) In finding specific gravity, what is always the dividend and what is the divisor?
(*d*) A specific gravity bulb weighs 38 g. in air, 28 g. in water, and 20 g. in an acid. Find the specific gravity of the acid.

9. Why is it desirable that a glass rod used for electrification be warmer than the atmosphere of the room where it is used?

10. A candle flame is 6 feet fom a wall; a lense is between the flame and the wall, 5 feet from the latter; a distinct image of the flame is found upon the wall:
(*a*) In what other position may the lens be placed, that a distinct image may be found upon the wall?
(*b*) How will the lengths of the images compare?

PHYSIOLOGY AND HYGIENE.

1. Describe the structure of cells. What is the work of cells? What do nerve cells represent?

2. How does fermentation affect a substance? Give illustrations of some fermentations. Why is alcohol called a narcotic poison?

3. Describe the alimentary canal. Where is the soft palate? The hard palate? The tonsils? How does saliva affect starch?

3. Describe the ailmentary canal. Where is the soft palate? The hard palate? the tonsils? How does saliva affect starch?

4. Describe the glands in the mucous membrane of the stomach. Name some conditions affecting digestion.

5. What does the liver secrete? Define absorption. Where does it take place? Where is the portal vein?

6. Trace the course of digestive fats from the intestines to the heart. The digested lean meats.

7. Where is venous blood found? Where does blood cease to be arterial? Describe the clotting of blood. What causes it and of what does clot consist?

8. Of what use are ligaments? What is caused by injuries to them? Describe the composition of voluntary muscle?

9. What two tissues chiefly regulate the temperature of the body? Discuss "Does alcohol aid in resisting cold?"

10. What is a nerve? Describe the spinal cord? What is reflex action? Is it ever under the control of the will?

11. What is meant by pure air? Name some of the effects resulting from a deficiency of air? What is the distinction between a deodorizer and a disinfectant?

SCHOOL LAW.

1. What limitations and restrictions are placed upon the county commissioner of schools? Mention one that applies to the Superintendent of Public Instruction; to instructor at an institute; to school examiner.

2. By whom are school districts formed and numbered?

3. How is the primary school fund raised?
4. (a) Who are legal voters at school meetings?
   (b) In what districts, if any, are women barred from voting?
5. (a) What citizenship qualification is required of teachers?
   (b) In your opinion what constitutes good moral character in a teacher?
6. (a) What tuition may be charged to non-resident pupils?
   (b) What is the minimum legal size of school flags?
7. What are the conditions under which the State Board of Education grants certificates to college graduates?
8. Are certificates or diplomas granted in other states valid in this State?
9. What pupils of the compulsory age are exempt from the provisions of the law for compulsory attendance?
10. (a) In what city school districts may the board establish ungraded schools?
    (b) What officer must be consulted before sentence is passed upon a juvenile disorderly person?

THEORY AND ART.

1. Name one book on pedagogy that you have read during the past year and give one of its leading thoughts.
2. Make a definite statement about any two of the following: Rousseau, Horace Mann, W. H. Payne, Wm. T. Harris.
3. State something concerning the purpose of the "Committee of Ten."
4. Explain what is meant by the "correlation of studies;" give an illustration. [20 credits.]
5. State your method of teaching intelligent patriotism in schools. [20 credits.]
6. What is the educational value of English grammar?
7. Explain the present status of "child study" and its practical bearing on school teaching. [20 credits.]

U. S. HISTORY.

1. How many notable attempts have been made to dissolve or disrupt the Union? When and under what circumstances were these attempts made and what names are historically connected with them?
2. When and where was held the first legislative body that ever assembled in this country? Of whom was it composed? What can you say of its powers and limitations?
3. Give the causes and results and indicate the participants in the Colonial contests known as King William's War, Queen Anne's War, King George's War.
4. When and under what auspices was the first national political convention held?
5. Prior to the first national convention, how were presidential candidates nominated and how were the electors chosen?
6. Give some facts connected with the early history of Harvard College and Yale University.
7. Give some of the more important facts connected with the public career of Allen G. Thurman.
8. When was the first Atlantic cable successfully laid? Give some facts connected with the origin and progress of that enterprise.
9. Refer to some of the more important events connected with the administration of President Hayes.
10. What was the purpose of the declaration made by President Monroe, now known as the "Monroe Doctrine?" Give your own interpretation and ideas as to its scope and wisdom.

ZOOLOGY.

1. What is understood by "organization?" What by "classification?" Upon what characters are "sub-kingdoms" founded?
2. What are the chief characters of Protozoa? The three great classes of?
3. What are the chief differences in the metamorphosis of insects? What peculiarity distinguishes the adult state of insects which undergo no metamorphosis?
4. Describe the general structure of the digestive system in birds.
5. Note the differences which exist in the form of the sternum in birds which fly and those which do not.
6. What is the difference between a gill and a lung?
7. What are the chief characteristics of the Diptera? Give examples. General characters of the Rasores? Examples?
8. What is the "blowing" of the whale? Give examples of the whalebone whales and toothed whales.
9. What mammals have no teeth? No external ear?
10. Describe the structure of the heart and course of circulation in a typical fish. Nature and position of the limbs of fishes.

COUNTY EXAMINATIONS.

III. QUESTIONS PREPARED BY THE SUPERINTENDENT OF PUBLIC INSTRUCTION FOR THE REGULAR EXAMINATION, MARCH 28 AND 29, 1895.

RULES GOVERNING EXAMINATIONS.

[Note to examiners and applicants.—Read No. 11 carefully.]

1. The package containing the questions shall be opened by the commissioner and he shall direct their distribution.
2. The questions upon a given subject shall be distributed at the same time to all applicants and no recess be allowed until the subject is finished.
3. Applicants when absent at its opening, shall not be admitted to the examination, except by the unanimous consent of the board of examiners.
4. No candidate shall leave the room or communicate with any other candidate or any visitor during the examination, except by permission of the commissioner.
5. All papers must be written on legal cap paper, unless the commissioner prescribes or permits some other size.
6. The commissioner shall be the custodian of the completed examination papers, and they *shall be kept on file at his office for a reasonable length* of time after the examination, say six months.
7. In arithmetic a knowledge of principles and general accuracy in method, shall be considered not less than three times as important as obtaining a correct answer.
8. In grammar allowance shall be made for different authorities.
9. A candidate's handwriting shall be judged from the answers to the questions in penmanship.
10. Applicants for third grade certificates shall be examined in writing, orthog-government, theory and art of teaching, school law, physiology and hygiene raphy, reading, grammar, arithmetic, geography, United States history, civil with special reference to the effect upon the human system of alcoholic drinks, stimulants, and narcotics. Applicants for second grade certificates shall, in addition to the third grade branches, be required to write on two additional ones which they may select from the lists furnished in general history, botany, physics, and algebra. Applicants for first grade certificates shall, in addition to the third grade branches, be required to pass an examination in botany, general history, geometry, and algebra.

11. Third grade certificates of class B are valid in ALL districts of the county in which they are granted. Third grade certificates of class A should be issued ONLY to those who teach in primary departments (first four grades) of graded schools. Holding a certificate of class A does not legally qualify a teacher for any other school. Boards of examiners must not grant certificates of class B to applicants who have done only the work required for a certificate of class A. Each printed list is plainly marked and no mistake should be made. (See Sec. 6, Act No. 147, Public Acts of 1893; also compiler's Section 131, School Laws of 1893.)

ALGEBRA.

First Grade.

1. (a) Define root of an equation and root of a number.
   (b) What does an exponent indicate when it is a positive integer; a positive fraction; a negative integer?
2. Resolve the following into elementary factors:

$$\begin{cases} 6x^2+5x-4 \\ a^2-13ab+4b^2 \\ a^3-a^2x-6ax^2 \\ 6b^2x^2-7bx^3-3x^4 \\ 7x^2-48x-7 \end{cases}$$

3. Solve the following without using any quadratic higher than the second degree: $x^2+y^2=225$. $xy=108$.
4. Apply the Binomial Theorem to the expansion of $(x-a)^b$ to the 4th term.
5. (a) How would you prove to your pupils that x^n-y^n is exactly divisible by $x-y$?
   (b) What is your plan for verifying at sight, without solving or substituting, the results which pupils give for such equations as $x^2-10x+30=0$?
6. Solve $(x-1)(x^2+x-1)=0$.
7. Rationalize $\dfrac{15+\sqrt{10}}{15-\sqrt{10}}+\dfrac{15-\sqrt{10}}{15+\sqrt{10}}$.
8. A merchant sold a certain number of yards of silk for $40.50. If he had sold nine yards more for the same money, he would have received 75 cents less per yard. How many yards did he sell?
9. Write two of the formulas much used in arithmetical progression, and three for geometrical progression?
10. There is a certain number composed of two figures; if to the sum of its digits 7 be added, the result will be three times the left hand digit; and if from the number itself 18 be subtracted, the digits will be inverted. Find the number.

Second Grade.

1. What proof, or verification, do you require of pupils as to correctness of their results in solving problems involving simple equations?
2. (a) What is the difference between a co-efficient and an exponent?
   (b) What kind of co-efficient has every algebraic quality?
3. A and B began to play together with equal sums of money; A won $20, but afterwards lost half of all that he then had, when his money was half as much as that of B. What had each at first?
4. (a) By what would you multiply $x^3+x^2y+xy^2+y^3$ to give x^4-y^4?
   (b) Explain how these expressions may be factored at sight? $\begin{cases} 9x^2+12xy+4y^2 \\ x^2-y^2 \end{cases}$
5. Illustrate the various transformations of an equation.
6. Explain why addition does not always mean augmentation, nor subtraction always denote diminution.
7. Two numbers are to each other as 2½ to 5, and their sum is 30. Find the numbers.
8. Give careful explanation of the law relating to the signs plus and minus, in both multiplication and division.

9. A man being asked his age, replied that he was four years his wife's senior; and if her age were decreased by 12, he would be twice as old. What was the age of each?

10. What explanation would you give your pupils of the right to "transpose" a term from one member of an equation to the other by changing the sign?

ARITHMETIC.

First and Second Grades.

1. Resolve 88,536 into its prime factors. Find all the sets of factors in 72.

2. A geographic mile is $\frac{1}{60}$ of $\frac{1}{360}$ of the earth's circumference; the equatorial circumference is 131,483,200 feet. How many common or statute miles are equal to 50 geographic miles on the equator?

3. A can mow ⅜ of a field of grass in 7 days; B can mow ⅜ of it in 8 days; how long will it take both working together to mow the field? Explain as to a class.

4. If 81 yards of cloth 1½ yards wide makes 27 coats, how many yards 1¼ yards wide will be required to make 50 jackets, each jacket containing 4-5 as much cloth as a coat? Solve by proportion.

5. (*a*) Write a 90 day promissory note for which you should get $240 at a bank, discount being 10%.
   (*b*) I sold two lots for $300 each. On one I gained 25%, on the other I lost 25%. Did I gain or lose? How much and what per cent?

6. (*a*) A merchant bought a $60 sewing machine at a discount of 30 and 16⅔% off, and sold it 5% above the list price. How much and what per cent did he make?
   (*b*) On a bill of $425 what is the difference between 50% off and 30 and 20% off?

7. (*a*) ¼ of a pint is what % of four gallons?
   (*b*) 2 miles is what % of 10 inches?
   (*c*) 80% of 5 is what % of 4?
   (*d*) ⅜ of 6% of $75, is ¾ of what % of $100?

8. Make original problems illustrating all the cases in interest.

9. State how you would find the convex surface of a cone, when the diameter of its base and its altitude are given; the volume of a pyramid, its altitude and area of base being given; the volume of a sphere, its diameter being given.

10. A room is 100 feet long, 60 feet wide, and 26 feet high. What is the distance from a lower corner to the opposite upper corner? Draw a diagram showing the given dimensions and the required line.

Third Grade, Class B.

1. Your standing for this portion of the examination will be marked on the general neatness with which you do your work on this topic; i. e., careful use of signs, tidy placing of equations, clearness of statement, and the other little things that are the earmarks of a well-trained scholar.

2. (*a*) Explain as to a class the difference between the simple and local value of figures.
   (*b*) Write in figures fourteen million, one thousand, and five hundredths; three trillion, two hundred one, and one thousand seventy billionths; also, write in words 7504306.04052¼.

3. I own a horse and a farm; one-fourth the value of the farm is four times the value of the horse; both taken together are worth $1,700. Find the value of each. Write out a complete analysis.

4. A man sold a lot for $84, and by so doing gained 1-5 of what it cost. What % would he have gained if he had sold for $100? Analyze.

5. A field of 5 acres in form of a square is to be surrounded by a fence 4½ feet high, to be built of boards 6 inches wide, placed horizontally. The lower board is to be four inches above the ground, and there is to be a space of 5 inches between the boards. What will be the cost of the boards required at $18 per M.

6. A merchant gets 500 barrels of flour insured for 75% of its cost, at 2½%, paying $80.85 premium. For how much per barrel must he sell the flour to make 20% upon cost price?

7. (a) A man devotes 40% of his income for household purposes, 25% for the education of his children, 16% of the remainder to charitable purposes, and saves the remainder, which is $705.60. What is his income?
   (b) A merchant remitted $1,500 to his agent, with instructions to deduct his commission, and with the balance buy flour. What will be the agent's commission at 2%, and how many barrels of flour will he buy at $3.25 per bbl?

8. One-half of a stack of hay will keep a cow 20 weeks, and ¾ of the stack will keep a horse 120 days. How many weeks will the whole stack of hay keep both the cow and the horse?

9. Make out in form a bill of not less than four items purchased by a hardware merchant of a wholesale house. Compute and receipt the bill?

10. (a) Draw a rectangle, give its dimensions, and find the length of its diagonal.
    (b) Find the circumference and area of a circle whose radius is ten rods.

Third Grade, Class A.

1. Your standing for this portion of the examination will be marked on the general neatness with which you do your work on this topic; i. e., careful use of signs, tidy placing of equations, clearness of statement, and the other little things that are the earmarks of a well-trained scholar.

2. (a) Explain as to a class the difference between the simple and local value of figures.
   (b) Write in figures fourteen million, one thousand, and five hundredths; three trillion, two hundred one, and one thousand seventy billionths; also write in words 7504306.04052¼.

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6. The railways of England use the time of Greenwich, and those of Michigan use that of the meridian 90° west of Greenwich. When it is noon, railway time in Michigan, what is the railway time in England? Explain as to a class.

7. (a) Draw a government township with all the subdivisions made by the government survey.
   (b) Define base line and meridian, and locate relatively town 14 N., range 10 W.

8. The weights of equal volumes of hydrogen and oxygen are as .0693 to 1.107. How many cubic feet of hydrogen will weigh as much as 4.2 cubic feet of oxygen?

9. Make out in form a bill of not less than four items purchased by a hardware merchant of a wholesale house. Compute and receipt the bill.

10. (a) Draw a rectangle, give its dimensions, and find the length of its diagonal.
    (b) Find the circumference and area of a circle whose radius is ten rods.

BOTANY.

First Grade.

1. (a) Define botany and plant.
   (b) Compare plant life with animal life and give the distinguishing features of each.
   (c) Mention several of the lower forms of life that have for a time baffled biologists in classification.

2. Name and define the different parts of the embryo.
3. Name and give the functions of the different parts of a flower.
4. Make a drawing showing a root tip and root hairs. Explain the use and action of each in the soil.
5. Explain the difference in methods of growth between timothy and June grass; between red and white clover.
6. Make drawings to illustrate a sessile, a lanceolate, an obcordate, an entire, a serrated, a palmate, a compound palmate, a pinnately compound, an ovate, and a parallel veined leaf.
7. What order or family of plants furnishes the greater part of the vegetable food of man? Give the characteristic features of the order and name five species belonging to it.
8. Explain the different ways in which seeds are distributed in nature, and give an illustration of each.
9. Give the characteristic features of the Rosaceæ family and mention several plants belonging to it.
10. Compare the growth of a maple with that of a corn plant.

Second Grade.

1. Define botany and give the different divisions of the subject.
2. What is a plant? What is the essential difference between plant and animal life?
3. Define the following terms as used in botany: seed, fruit, drupe, and raceme.
4. Mention the different methods of propagating plants and give an illustration of each.
5. (*a*) What are the functions of roots and of leaves? (*b*) What is meant by a tap root; by fibrous roots? Mention plants which illustrate each form of root.
6. Draw a parallel veined leaf, two kinds of netted veined leaves, a compound pinnate leaf, and a serrated leaf.
7. What parts of the following plants form the edible portions: wheat, potato, apple, onion, cabbage, beet, pumpkin, strawberry, cauliflower, and asparagus.
8. Define monœcious, diœcious, and polygamous. Mention plants illustrating each of the above.
9. (*a*) How may the germination of seeds be best studied by a class of beginners? (*b*) Make a drawing to show the different parts of a young plant.
10. Give month in which the following plants flower and fruit in Michigan: peach, maple, linden (basswood), elm, willow, strawberry, oak, corn, potatoes, and red clover.

CIVIL GOVERNMENT.

First and Second Grades.

1. What are the three great functions of government? Briefly describe each.
2. Describe the important compromises that are to be found in the Constitution of the United States.
3. What are the powers of Congress (*a*) in regard to money matters, (*b*) in regard to the army?
4. Compare the Supreme Court of this State and the United States as to number of judges, method of choice, term of service, salary, jurisdiction, etc.
5. What does the State Constitution say concerning imprisonment for debt, and why this provision?
6. How may a county seat be removed when once established?
7. What board has control of the University of Michigan? When and for how long are members of this board chosen?

8. What do you consider the most important question before our government today? Tell why the most important, and outline the legislation and attempted legislation upon this question for the past two or more years.
9. Which of the different kinds of government—monarchy, democracy, or republic—should be typified in the government of a school? Give good reasons for your answer.
10. What should be every voter's relation to the caucus? If one's party nominates an unfit man for an office, what is one's duty?

Third Grade, Class B.

1. Your standing for this portion of your examination will be marked on the general neatness with which you do your work on this topic.
2. Where is vested the power to borrow money to carry on the national government?
3. Define tariff, free trade, excise tax. Upon what articles is there an excise tax in the United States?
4. What change was made as to the right of elective franchise, by one of the recent amendments to our State Constitution?
5. How are public highways laid out and maintained? What officers have charge of them?
6. What are the provisions of the Constitution with reference to the militia? Who constitute the militia?
7. What measures of importance have been passed by the present Legislature, and what other measures of general interest are being considered by this body?
8. What are the conditions of eligibility to Congress, United States Senate, State Legislature, Governor, and County School Commissioner?
9. How are prisons and reformatory institutions in this State maintained, and what is their object?
10. What should be every voter's relation to the caucus? If one's party nominates an unfit man for an office, what is one's duty?

Third Grade, Class A.

1. Your standing for this portion of your examination will be marked on the general neatness with which you do your work on this topic.
2. Where is vested the power to borrow money to carry on the national government?
3. What do you consider the strongest feature of our school system and what the weakest?
4. What change was made as to the right of elective franchise, by one of the recent amendments to our State Constitution?
5. What township, county, and State officers are connected with school and educational matters?
6. What are the provisions of the Constitution with reference to the militia? Who constitute the militia?
7. What measures of importance have been passed by the present Legislature, and what other measures of general interest are being considered by this body?
8. (*a*) What village or city officers will be elected at the next election?
   (*b*) Give the duties of two of these officers.
9. (*a*) Where is vested the power to establish and maintain postoffices and post-roads?
   (*b*) How are postmasters and mail carriers appointed and how paid?
10. What should be every voter's relation to the caucus? If one's party nominates an unfit man for an office, what is one's duty?

GENERAL HISTORY.

First Grade.

1. Who is the present Czar of Russia, President of France, Emperor of Germany, Emperor of Japan, and President of Hawaii?
2. What can you say of the Edict of Nantes and the Diet of Worms?
3. Give a brief history of the Hebrew people up to the present time. What have they done toward the civilization of the world?
4. Give some of the causes and results of the French Revolution.
5. Give a brief account of the movements and achievements of the followers of Mahomet. What have they done for the advancement of civilization?
6. Explain the historical origin of the following words: Virginia, Protestant, Florida, phillippic, and laconic.
7. Mention the important problems confronting the United States, the French, and the Chinese governments.
8. Give a brief history of the revolution in Brazil that resulted in making it a republic, with subsequent events.
9. For what are the following noted: Odoacer, Zoroaster, Charles Martel, Austerlitz, and Sebastopol.
10. What are the lessons to be learned and the benefits to be derived from the study of ancient history?

Second Grade.

1. Who was regarded as the greatest orator of Greece, and of Rome at the time of Cæsar? Sketch briefly the life of one of them.
2. Give a brief account of the Persian invasion of Greece under Xerxes, with its results.
3. What were the Punic wars? Mention two or more generals on each side in these wars. How did they terminate?
4. Give an important event connected with each of the following: Darius, Mark Antony, John Knox, Hastings, Waterloo, Nice, Worms, Crimea, Korea, and Parnell.
5. Name the last three Presidents of France, the last three of the United States, and the last three Prime Ministers of Great Britain.
6. What important events occurred during the reign of Elizabeth and George III?
7. When and by whose efforts were the German States united under one ruler?
8. What events led to the formation of a republic in France?
9. Give a brief account of the war between China and Japan, and the cause of the war.
10. What are the relations between Hawaii and the United States?

GEOGRAPHY.

First and Second Grades.

1. What is the earth? Name the other planets revolving about the sun in order of distance from the sun.
2. What determines the length of a day and of a year on the earth? Is the length of a day and a year the same on all the planets?
3. (*a*) Account for the existence of lakes.
   (*b*) Why are some lakes salt while most are fresh?
4. Bound California and give its chief mountains and rivers.
5. Name and locate the leading industries of the above state. To what places are most of its products shipped?
6. Locate at least five of the following: Harvard University, Yale College, William and Mary's College, Johns Hopkins University, Purdue University, Columbia College, United States Military Academy, United States Naval Academy.

7. Name five rivers that belong to the Chesapeake basin, and give one or more events of historical interest that have taken place upon the banks of each.
8. Compare the continent of South America with that of Africa, in outline, in physical features, and in natural resources.
9. What matters of history should be introduced in connection with the study of the geography of the above country?
10. Draw an outline of the eastern shore of Michigan from Cheboygan to the Maumee Bay. Locate on this and write the names of five important rivers of our eastern slope, five cities, three bays, the great lumber district, the apple district, the manufacturing and farming regions.

Third Grade, Class B.

1. What is the source of the earth's heat? Explain as to a class why it is warmer at noon than in the morning and evening.
2. Why is the water in the depths of a lake always cool, and why will it freeze on the surface in winter and be warm in summer?
3. Draw an outline map of North America, giving its physical divisions.
4. Upon this map locate the leading industries of the people.
5. Locate the leading products from the mines, forests, farms, fisheries, and manufactories.
6. Why is Minneapolis favorably located for the manufacture of flour? Chicago as a lumber and grain depot?
7. What counties in Michigan are famous for fruit growing; for salt production; for iron; for copper; for State institutions?
8. For what are the following noted: Cork, Liverpool, Venice, Lyons, Cologne, Corea, Crimea, Armenia, Black Hills, and Calumet?
9. Describe the fauna of Australia. In what respect are the animals of that continent so different from those of other continents?
10. (*a*) What is wind and how caused?
    (*b*) What are the prevailing winds in Michigan? How could you determine this fact from a forest? From an orchard? From the lake coast?

Third Grade. Class A.

1. What is the source of the earth's heat? Explain as to a class why it is warmer at noon than in the morning and evening.
2. Why is the water in the depths of a lake always cool, and why will it freeze on the surface in winter and be warm in summer?
3. Draw an outline map of North America, giving its physical divisions.
4. Upon this map locate the leading industries of the people.
5. Locate the leading products from the mines, forests, farms, fisheries, and manufactories.
6. Why is Grand Rapids favorably located for the manufacture of furniture? Detroit for the manufacture of hardware?
7. For what are the following noted: Ann Arbor, Kalamazoo, Battle Creek, Calumet, Marquette, Manistee, Mackinaw, Sault Ste. Marie, Petoskey, and Lansing?
8. Name and locate ten animals native to Michigan and ten different kinds of trees.
9. Locate the Red Sea and name several towns or cities on or near the shores. What can you say of the people living near it?
10. Compare the civilization of the Japanese with that of the Chinese. What events have recently brought these people to especial notice?

GEOMETRY.

First Grade.

1. Define surface, plane, theorem, problem, demonstration.
2. (*a*) Divide a right angle into three equal angles.
   (*b*) If fifteen equal angles are formed at the center of a circle, what is the magnitude of each intercepted arc?
3. (*a*) Of how many dimensions are the following: a line, a straight line, a brick, a cricket ball, a shadow?
   (*b*) When are two triangles equal and when similar?
4. (*a*) A segment of a circle being given, describe the circle of which it is a part.
   (*b*) Describe a square equal to a given rectilinear figure.
5. Prove that, if a straight line be drawn through a triangle parallel to one of its sides, it will divide the other two sides proportionally.
6. (*a*) What recommendations did the Committee of Ten make regarding the teaching of Geometry?
   (*b*) In your opinion, what is the proportionate amount of suggested and of original demonstration to be done by pupils, and why are both necessary?
7. How is the inclination of two planes measured, and what conditions completely determine a plane?
8. Demonstrate: The rectangle contained by two lines, is a mean proportional between their squares.
9. Give reasons for the following:
   (*a*) If any two points be taken in the circumference of a circle, the straight line which joins them must fall within the circle.
   (*b*) The angles in the same segment of a circle, are equal to one another.
10. Prove that, if one side of a quadrilateral inscribed in a figure be produced, the exterior angle is equal to the opposite angle of the quadrilateral.

GRAMMAR.

First and Second Grades.

1. General neatness of this paper, that is, arrangement of headings and sub-headings, separation and classification of answers, will count for this number.
2. Write sentences to illustrate the following:
   (*a*) "is" used intransitively.
   (*b*) "is" used with attribute complement.
   (*c*) "sing" used with cognate accusative.
   (*d*) "make" used with direct and indirect object.
   (*e*) "make" used with factitive object.
3. With what subjects does the report of Committee of Ten say that language should be correlated?
4. Use both singular and plural possessive of the following: Miss Hill, girl, monkey, sister-in-law, countess, lily, deer, ox, calf, cargo.
5. Parse the verbs and pronouns in the sentence, "To know how to say what other people only think, is what makes men poets and sages."
6. Distinguish between the root infinitive, the verbal noun, and the present participle, illustrating each with a sentence.
7. Analyze the following: "When all was over, Wellington said to Blucher, as he stood by him on an eminence looking down upon the dead and dying, 'A great victory is the saddest thing on earth, except a great defeat.'"
8. Write not less than 150, nor more than 250, words on one of the following topics:
   Nature Study.
   Spring Work on the Farm.
   The Committee of Ten.
   The Land of the Free.
   Present Needs of our Common Schools.

(Thirty credits on this number, marked on ability to construct good, strong English; to capitalize, spell, and punctuate correctly.)

Third Grade, Class B.

1. General neatness of this paper, that is, arrangement of headings and sub-headings, separation and classification of answers, will count for this number.
2. Explain all the subordinate clauses in the following:
   (*a*) That Julius Cæsar invaded Britain, is an historic fact.
   (*b*) For the promise that he should be the heir of the world, was not to Abraham.
   (*c*) I eat that I may live.
   (*d*) He is so rich that his wealth is a burden.
   (*e*) He said that he would go.
3. What is an abstract, an outline, a compilation, a reproduction?
4. Construct sentences to illustrate the following uses of "fast:"
   (*a*) As a mere adjective.
   (*b*) An adjective in predicate.
   (*c*) A noun.
   (*d*) A verb.
   (*e*) Used with a factitive predicate.
5. Parse italicized words:
   Which one will you have? I will have that book *which* we selected. *Let* others *praise thee.*
6. Tell how you distinguish a verb in the progressive form from the participle used adjectively: as, she comes singing; she is singing.
7. Of the nine parts of speech, how many have properties? Name them and the properties of each.
8. Write not less than 150, nor more than 250, words on one of the following topics:
   Patriotism.
   School Libraries.
   Grade Examinations.
   The Loss of a Steamer (imaginary or real).
   My Last Term of School.

(Thirty credits on this number, marked on ability to construct good, strong English; to capitalize, spell, and punctuate correctly.)

Third Grade, Class A.

1. General neatness of this paper, that is, arrangement of headings and sub-headings, separation and classification of answers, will count for this number.
2. How should language work be commenced? What main purposes do you keep in view?
3. Write a simple sentence and expand it into a complex and a compound sentence.
4. Construct sentences to illustrate the following uses of "fast:"
   (*a*) As a mere adjective.
   (*b*) An adjective in predicate.
   (*c*) A noun.
   (*d*) A verb.
   (*e*) Used with a factitive predicate.
5. Parse italicized words:
   Which one will you have? I will have that book *which* we selected. *Let* others *praise thee.*
6. Name two subjects for composition which you deem suitable for pupils from eight to twelve years, giving your reasons for choice.
7. Of the nine parts of speech, how many have properties? Name them and the properties of each.

8. Write not less than 150, nor more than 250, words on one of the following topics:
   Patriotism.
   School Libraries.
   Grade Examinations.
   The Loss of a Steamer (imaginary or real).
   My last Term of School.

(Thirty credits on this number, marked on ability to construct good, strong English; to capitalize, spell, and punctuate correctly.)

ORTHOGRAPHY.

All Grades.

1. (*a*) Name the three elements of orthoepy. (*b*) What is the two-fold object of syllabication?
2. (*a*) In words of two syllables, where does the accent usually fall? (*b*) Where in words of three or more?
3. (*a*) What is the difference in the sound of *a* in ale and in literature? Why? (*b*) Illustrate the difference between obscure *e* and silent *e*.
4. Syllabicate, accent, and mark vowels in the following: contumely, instructor, finance, dictionary, haunt, orthoepy, conversant, were, seven, adversary.
5. Build and analyze words containing the following suffixes and prefixes: ab, age, con, an, ant.
6. Give words to illustrate three substitutes for k, one for f, and one for t.
7. Explain about the doubling of final consonants when a suffix is added.
8. Name three requirements of good articulation.

9 and 10. Spell list of words.

LIST OF WORDS.

1. plausible.
2. accountable.
3. indispensable.
4. icicle.
5. taxation.
6. ascension.
7. pianos.
8. vetoes.
9. tragical.
10. allspice.
11. bayou.
12. apparatus.
13. parallel.
14. asthma.
15. conscious.
16. avoirdupois.
17. hemorrhage.
18. Hawaii.
19. generally.
20. exquisite.

PENMANSHIP.

All Grades.

Write a paragraph of not less than twenty-five words, telling what you consider the most important characteristics of good writing.

(Knowledge of subject to count 30% and penmanship 70%.)

PHYSICS.

First Grade.

1. Define inertia, energy, gravitation, dyamics, and composition of forces.
2. (*a*) Describe and give application of the differential screw; (*b*) the endless screw.
3. Give Pascal's Law and explain the principles and practical working of the hydraulic press.
4. (*a*) Define magnetism and electricity, and explain their relations to each other. (*b*) Define external and internal resistance, and tell what amount of current flows through the different branches of a compound circuit.

5. Compare the suction pump with the force pump, (*a*) in construction, (*b*) in application; also make drawings to show the arrangement and working of the valves.
6. Explain the difference between physical and chemical change, cohesion and adhesion, force and motion, velocity and momentum.
7. Describe some easy experiment that would help a pupil to understand what is meant by impenetrability, diffusion of liquids, electrical excitation.
8. (*a*) Explain why two plumb lines are not exactly parallel.
   (*b*) A rifle ball shot vertically upward, returns to the earth in eighteen seconds. How far did it ascend?
9. (*a*) How much heat is required to melt one pound of ice? (*b*) How much heat is given off to convert one pound of ice-cold water into ice? (*c*) Heat sufficient to raise the temperature of one pound of water one degree, would raise one pound how many feet? (*d*) How many heat units are required to convert one pound of water into steam?
10. Enumerate a list of articles that can be provided at small expense by the teacher of a district school, to aid in teaching the rudiments of physics.

Second Grade.

1. Define each of the following properties, and name a substance possessing it; tenacity, elasticity, brittleness, porosity, indestructibility.
2. Give the three laws of weight.
3. What causes the rainbow?
4. Explain the formation of dew, fogs, clouds, rain, snow.
5. (*a*) How long will it take sound to travel through the air from Ann Arbor to Ypsilanti, if the distance be 9 miles? (*b*) How long will it take light to travel from New York to San Francisco—3,500 miles.
6. Describe the following as levers, and tell to which class each belongs: a pair of tongs, a pump handle, a fishing rod.
7. Explain the essential differences between the arc and the incandescent light.
8. By drawing show the effect of concave and convex lenses upon the rays of light. For what defect of vision is each used?
9. Explain the following: (*a*) Why a towel absorbs the moisture from our hands. (*b*) Why ink sticks to the paper. (*c*) Why oil rises into the lamp wick. (*d*) Why ice rises to the top of water. (*e*) Why people standing in a car are sometimes thrown down when the car starts.
10. How do solid substances differ from liquids? Name three of each kind.

PHYSIOLOGY.

First and Second Grades.

1. General neatness of paper to count for this number.
2. Name one or more provisions in the structure of the skeleton by which the body is protected from shocks and jars.
3. Give location of the following glands: lachrymal, sebaceous, salivary, perspiratory, lymphatic.
4. Make a diagram showing the course of the blood in the body, starting from the right auricle and returning to it again.
5. (*a*) State three uses of bones and illustrate. (*b*) How can you tie a bone in a knot?
6. Name the two divisions of the nervous system and the functions over which each presides.
7. (*a*) In what ways is the use of tobacco injurious to boys? (*b*) What is the effect upon the blood of the continued use of alcohol?
8. Explain the nature of digestion, and give brief description of the organs concerned in the process.

9. How do the voluntary muscles differ from the involuntary in structure and in action?
10. Write a short description of the structure, uses, and modifications of the skin.

Third Grade, Class B.

1. General neatness of paper to count for this number.
2. (*a*) In what forms is alcohol used by man, and why is its use dangerous?
   (*b*) Mention some diseases resulting from its use.
3. (*a*) What is absorption?
   (*b*) Name the secretory organs.
4. State four habits conducive to good health which pupils may be led to practice while at school.
5. What is the mucous membrane and where is it?
6. Locate the following with reference to the stomach: spleen, diaphragm, pancreas, duodenum, gall-bladder.
7. Mention four means that nature has provided for protecting the eyes.
8. Describe the coats of the stomach and their uses.
9. Write a brief essay on the Circulation of the Blood, noting its function, organs, course, and changes. [20 credits.]

Third Grade, Class A.

1. General neatness of paper to count for this number.
2. (*a*) In what forms is alcohol used by man, and why is its use dangerous?
   (*b*) Mention some diseases resulting from its use.
3. Describe the effects upon the organs of respiration of an habitually stooping posture.
4. State four habits conducive to good health that pupils may be led to practice while at school.
5. What is the mucous membrane and where is it?
6. Locate the following with reference to the stomach: spleen, diaphragm, pancreas, duodenum, gall-bladder.
7. Mention four means that nature has provided for protecting the eyes.
8. Describe the coats of the stomach and their uses.
9. What are the main purposes of the circulation of the blood?
10. How does an organ differ from a tissue?

READING.

All Grades.

1. *Seems*, madam! Nay it *is*; I know not seems.
   'Tis not alone my inky cloak, good mother,
   Nor customary suits of solemn black,
4. Nor windy suspiration of forced breath;
   No, nor the fruitful river in the eye,
   Nor the dejected 'havior of the visage,
7. Together with all forms, modes, shows of grief,
   That can denote me truly. These indeed seem,
   For they are actions that a man might play;
10. But I have that within which passeth show,
    These but the trappings and the suits of woe.

—*Shakespeare.*

1. Chemistry is not behind in its wonders. That the diamond should be made of the same material with coal; that water should be chiefly composed of an inflammable substance; that acids should be almost all formed of different kinds of air, and that one of these acids, whose strength can dissolve almost any of the metals,

should be made of the self same ingredients with the common air we breathe,—these, surely, are things to excite the wonder of any reflecting mind.—*Lord Brougham.*

2. "And how did Garrick speak the soliloquy last night?" "Oh, against all rule, my lord, most ungrammatically! Betwixt the substantive and the adjective (which should agree together in number, case, and gender) he made a breach, thus—stopping as if the point wanted settling. And after the nominative case (which your lordship knows should govern the verb) he suspended his voice in the epilogue a dozen times, each time three seconds and three-fifths, by a stop-watch, my lord." —*Sterne.*

3. Sir, you are mistaken if you think that your talents have been as great as your life has been reprehensible. After a rank and clamorous opposition, you became on a sudden *silent*; you were silent for seven years; you were silent on the greatest questions, and you were silent for money! You supported the unparalleled profusion and jobbing of Lord Harcourt's ministry. You, sir, who manufacture stage thunder against Mr. Eden for his anti-American principles; you, sir, whom it pleases to chant a hymn to the immortal Hampden; you, sir, approved of the tyranny exercised against America; and you, sir, voted four thousand Irish troops to cut the throats of the Americans fighting for their freedom, fighting for *your* freedom, fighting for the great principle, *liberty.—Grattan's Denunciation of Mr. Flood.*

SCHOOL LAW.

All Grades.

1. How may two or more school districts be united into one?
2. Are women eligible to hold district offices?
3. Has the teacher the authority to suspend or expel pupils from school?
4. What penalty may be inflicted upon a person who shall wilfully disturb a district meeting?
5. Is a certificate signed by a commissioner and issued to himself, a legal certificate?
6. Does a vote taken at a school meeting directing a board not to admit non-resident pupils, have any legal effect?
7. How is the amount of taxes for building purposes restricted?
8. When inspectors contemplate an alteration of the boundaries of a school district, how shall they give notice of a meeting for that purpose?
9. *Name some of the articles which our school law designates as necessary appendages to a schoolhouse.
10. *How many months of school must be taught in a district to entitle it to its share of the primary school interest fund?

THEORY AND ART.

All Grades.

1. Name five good expedients for use in morning exercises.
2. Specify two methods for teaching morals, and three for inculcating patriotism.
3. May skill in essay writing be better acquired by one supreme effort of the pupil each term, or by a succession of frequent and less formal efforts throughout the term? Give reasons for answer.
4. What prominent educator accomplished for Massachusetts very much the same work that "Father Pierce" did for Michigan? Were these two men contemporaries?
5. What style of books should be found on the shelves of the township library; i. e., should they be mainly for supplemental reading or for general reference? What for the district library?
6. Specify what use you have made of the State Manual and Course of Study in your work of the past year?

* NOTE.—The Legislature of 1895 has made several amendments to the school law. In making the answers to questions nine and ten, the examiner will make proper allowance for incomplete answers.

7. (*a*) According to Col. Parker, in what is the art of teaching concentrated? (*b*) What does he say is the one end to be gained by every study?
8. What is the most important reason for requiring ready obedience from pupils?
9. (*a*) What is the signification of the "child-study" so much talked of at present? (*b*) What is the primary object of nature study?
10. Why is the school commissioner so important a factor in our school system? Mention some of the ways in which he has helped you personally.

UNITED STATES HISTORY.

First and Second Grades.

1. What are the epochs, or periods, of American history? Give the events and dates that serve to separate, or bound, these epochs.
2. Give synopsis of the Spanish discoveries and explorations in America.
3. What territory did Spain claim by virtue of these discoveries and explorations, and in what way did these claims conflict with those of other nations?
4. What was the object of the New England Confederacy, what colonies were included in it, and how long did it last?
5. By what body was the Declaration of Independence adopted, by whom introduced, by whom written, and by whom signed?
6. In what way are the following persons connected with American history: James Otis, Stephen A. Douglas, Custer, Marion, Moultrie, LaFayette, Garrison, Irving, Fulton, and Eads?
7. Draw a map of the Louisiana Purchase, and name the states that have been carved out of it.
8. Give a brief history of slavery in the United States, and sketch the anti-slavery movement that ended in the overthrow of slavery. [20 credits.]
9. What can you say on any five of the following topics:
   (*a*) The 53d Congress.
   (*b*) Relation of the United States to Nicaraugua Canal.
   (*c*) Vacancies in State Offices filled by Governor Rich.
   (*d*) Bond Issues by the United States Government during the present Administration.
   (*e*) Bering Sea Award.
   (*f*) Frederick Douglass.
   (*g*) The Postmaster General.
   (*h*) Attitude of President Cleveland on the Silver Question.
   (*i*) Great Marine Disasters—two at least.
   (*j*) Reforms in Municipal Government.

(NOTE.—Examiners are to consider the accuracy of statement, breadth of view, and extent of reading indicated by the answers.)

Third Grade, Class B.

1. What parts of America did the Spaniards colonize, and what parts are now occupied by their descendants?
2. Name three prominent financiers connected with our history, and give a brief sketch of the times that made each prominent.
3. Give a short account of Pontiac's Conspiracy.
4. State the purpose for which each of the following colonies was founded: Maryland, Georgia, Pennsylvania, Rhode Island, and Virginia.
5. What assistance did France give the colonies in the struggle for liberty? What motive prompted France in this matter?
6. (*a*) Give an account of Franklin's services during the Revolutionary War. (*b*) Of Beecher's services during the late war.
7. Explain how the United States came into possession of the Northwest Territory. What States were carved out of it, and when was each admitted into the Union?

8. Name the officers who were, at different times, in command of the Army of the Potomac, and give one or more engagements of the army under the command of each.
9. In what way are the following connected with the history of Michigan: Hull, Mason, Pierce, Houghton, and Blair?
10. What can you say on any five of the following topics:
    (a) The 53d Congress.
    (b) Relation of the United States to the Nicaraugua Canal.
    (c) Vacancies in State Offices filled by Governor Rich.
    (d) Bond Issues by the United States Government during the present Administration.
    (e) Bering Sea Award.
    (f) Frederick Douglass.
    (g) The Postmaster General.
    (h) Attitude of President Cleveland on the Silver Question.
    (i) Great Marine Disasters—two at least.
    (j) Reforms in Municipal Government.

Third Grade, Class A.

1. Give the names of five women prominent in American history.
2. State something that made each of these women prominent.
3. Describe an event of our history illustrative of great personal courage.
4. Give a brief account of the early settlement of your county. When was it made a separate county, about what is its population now, what is the chief occupation of its people, and what are its possibilities?
5. Give a short account of Pontiac's Conspiracy.
6. State the purpose for which each of the following colonies was founded: Maryland, Georgia, Pennsylvania, Rhode Island, and Virginia.
7. Name the heroes of any two historic poems.
8. Give two famous sayings by soldiers or statesmen noted in American history.
9. From what State did most of the early settlers of Michigan come, and what effect did this have upon the subsequent development of our State's resources?
10. Tell what you can of Frederick Douglass.

IV. QUESTIONS PREPARED BY THE SUPERINTENDENT OF PUBLIC INSTRUCTION FOR THE REGULAR EXAMINATION, AUGUST 15 AND 16, 1895.

ALGEBRA.

First Grade.

1. General neatness to count for this number.
2. Factor $3m^5n^2-3m^2n^8$, x^3+y^3, and x^4-1.
3. Explain the law of signs as to a class.
4. Multiply $2x^{1/3}+x+3x^{2/3}$ by $x^{2/3}+2$. Letting $x=8$, find the numerical value of the above.
5. A boy started from home on his bicycle at 7 a. m., going at the rate of 8 miles an hour. After riding a certain distance the machine broke down and he was compelled to return home afoot, arriving at 6:30 p. m. How far did he go, if he walked at the rate of three and a half miles an hour? Solve with one unknown quantity.

6. A flower bed 9 feet long and 6 feet wide has a walk around it whose area equals that of the bed. Find the width of the walk.
7. A rectangular piece of ground has a perimeter of 100 rods, and its area is 589 square rods. What are its length and breadth?
8. If a:b::c:d, show that a+b:b::c+d:d.
9. Define surd, radical, quadratic equation, simultaneous equations, negative exponent, and give an example of each.
10. At what stage in school does the Committee of Ten recommend that the study of algebra be taken up and how long should it be pursued?

Second Grade.

1. General neatness to count for this number.
2. Define co-efficient, exponent, polynomial, equation, and algebraic expression.
3. Simplify (*a*) $3b-2b^2-(2b-3b^2)$.
   (*b*) $3a-2b-(2b+a)+(a-5b)$.
4. Explain as to a class the difference between $4a$ and a^4; also b^3 and $b\frac{1}{3}$. Find the numerical values of the above expressions, if $a=2$ and $b=8$.
5. Find the product of $-a$ multiplied by -6, also of -6 multiplied by -5, and explain reason for the sign in the products.
6. State five fundamental propositions for factoring.
   Factor $x^2-4\times-21$, a^3-b^3, and $-x^4+y^4$.
7. Two boys can sweep a dormitory in three hours. One of them can sweep one-third of it while the other is sweeping one-fourth of it. How long will it take each working alone?
8. Solve $4+10x+5-6x\left(\frac{1}{x}-\frac{1}{3}\right)=27$; also $\frac{x}{3}-\frac{x^2-5x}{3x-7}=\frac{2}{3}$.
9. A boy bought a certain number of apples at the rate of four for five cents, and sold them at the rate of three for four cents. He gained sixty cents. How many did he buy?
10. Make an original problem involving three unknown quantities, and solve by substitution.

ARITHMETIC.

First and Second Grades.

1. General neatness of paper to count for this number.
2. Define measure, percentage, proportion, root, and frustum.
3. A farmer exchanged 96 bushels of corn, worth 55 cents a bushel, for an equal number of bushels of rye and oats. The rye being worth 75 cents a bushel and the oats 35 cents, how many bushels of each did he receive?
4. If 600 men who are beseiged in a town with bread enough for 60 days (allowing each man 20 ounces per day) be reinforced by 200 men and have the daily allowance reduced to 15 ounces, how long will the bread last?
5. A man's expenses equal 80% of his income, and 33⅓% of his income equals 10% of his property, the latter being valued at $2,700. What were his expenses?
6. A ladder 25 feet long is placed with the base five feet from the bottom of a perpendicular wall. How far must the base be moved in order to lower the top five feet?
7. A grocer buys sugar at $4.80 a cwt. and sells it at five cents a lb. Allowing 6% waste, does he gain or lose, and what per cent?
8. (*a*) Draw up a negotiable note payable to J. G. Edmunds, bearing 6% annual interest, and explain how he can make this payable to the City National Bank. In doing so would Mr. Edmunds become responsible for its payment?
   (*b*) Make a sight draft on the above named bank. Does a time draft draw interest?

9. (*a*) What are the two chief objects to be attained by the study of arithmetic? (*b*) What place does the Committee of Fifteen accord to arithmetic as to importance?

10. Find the area of a square inscribed in a circle having an area of 1520.5344 square feet.

Third Grade, Class B.

1. General neatness of paper to count for this number.

2. Express as a decimal $\frac{3}{8} \times \frac{\frac{3}{4} - \frac{1}{8} \times \frac{10}{6}}{3\frac{1}{3} - 2\frac{5}{6}}$

   What is the order of preference of the signs of operation?

3. A man paid $\frac{3}{8}$ of his money for a farm, and $4 more than $\frac{1}{2}$ of the remainder for repairs, after which he had $2,634 left. How much had he at first?

4. If a man walks $\frac{5}{9}$ of a mile in $\frac{3}{15}$ of an hour, how far will he walk in $7\frac{1}{2}$ hours? Explain as to a class.

5. A merchant purchased flour for $3 per barrel. For how much must he sell it per pound, in order to gain 20%, allowing 5% for waste in handling?

6. Demonstrate the methods of finding area of a circle and a triangle, respectively.

7. Give the formula for computing interest on any given principal for any given time. Show by transposition how the formula for any problem in interest, may be deduced from this formula.

8. Make out a bill of sale of the following items sold by R. G. Horr to W. C. Harvey:—2 yds. of carpet at 80c; 3 curtains at 4\frac{1}{2}$; 16 chairs at $5 per doz.; a bookcase at $15. Also receipt the payment of this bill.

9. Solve the following by analysis:
   (*a*) What per cent of 2½ bushels is ½ peck?
   (*b*) Of what number is 112, 20 per cent?
   (*c*) Three pints is what per cent of 3½ gallons?
   (*d*) What is ¼ of 1 per cent of 25?
   (*e*) Of what is ½, ½ per cent?

10. State original problems illustrative of the different cases in longitude and time. Work one of them and explain as to a class.

Third Grade, Class A.

1. General neatness will count for this number.

2. When should the pupil begin the study of arithmetic, and in what grades, or years, should it be completed? Give reasons for your answer, and tell whether it agrees with the recommendations of the Committees of Ten and Fifteen, respectively.

3. Reduce to decimal form $1\frac{3}{8} \times \frac{\frac{1}{2} - \frac{3}{5} \times \frac{1}{16}}{4 + 7\frac{1}{2} + \frac{3}{4}}$

4. Explain as to a class why, in multiplication, the multiplier is always an abstract number, and in division, why the quotient is of the same denomination as the dividend.

5. When are two numbers prime to each other? Illustrate. What is a composite number, what a component factor? Illustrate.

6. Chicago uses "Central standard time;" that is, the time of the meridian 90° west of Greenwich. The longitude of Chicago is 87° 36′ 42″ W. When it is noon, local time, what is the standard time there?

7. There is now a tariff of fifty cents a gross on lead pencils and an additional duty of 30% ad valorem. What is the total duty on 150 gross of pencils valued at $481.65?

8. At what price must a $1,200 bond be bought so that the purchaser may receive 5% on his investment, if the bond bear 3.75%?

9. Draw a parallelogram, a hexagon, a circle, a triangle, and a rhombus, stating how you would find the area of each.

10. A merchant sends his agent $640 with which to buy potatoes. He pays $60 for loading and takes out his commission of 1½ per cent. How many bushels of potatoes will the agent buy at 35 cents a bushel?

BOTANY.

First Grade.

1. What constitutes the food of plants and how do they obtain it?
2. Define tree, shrub, annual, deciduous, herbaceous, and give an example of each.
3. Give the common names of ten Michigan trees and state some of the important uses for which they are especially adapted.
4. Give some of the peculiarities of each of five of the trees named above, so far as botanical characteristics are concerned.
5. Name five common weeds and describe botanically two of them.
6. What is the chief use of floral envelopes? Of what benefit to the plant are the high colors and sweet odors of flowers?
7. Name five plants belonging to each of the following families: Compositæ, Leguminosæ, and nightshade.
8. Make drawings showing the cellular structure of the upper and under surface of a leaf. Of what use is the stomata?

9 and 10. The commissioner should place in the hands of each applicant some softened kernels of corn or beans, the applicant to name and describe the different parts and make drawings illustrating.

Second Grade.

1. General neatness to count for this number.
2. Define biology, botany, and zoology.
3. What is a perfect flower; a regular flower; a complete flower?
4. Draw an outline of five different forms of leaves, naming each.
5. Explain the difference between determinate and indeterminate inflorescence. Illustrate by drawings.
6. Name five common weeds and state to what family each belongs.
7. Name five wild plants admired for their blossoms and describe more especially two of them.
8. State what parts of the following plants are used for food:—potato, tomato, strawberry, onion, celery, beet, cauliflower, mushroom, cucumber, and peach.

9 and 10. The examiner should place in the hands of each applicant a bean plant (in blossom and in fruit, if possible) and the applicant should describe it both in words and by drawings.

CIVIL GOVERNMENT.

First and Second Grades.

1. General arrangement and neatness of paper to count for this number.
2. Define political duties, economic duties, social duties. Give an example of each kind.
3. Name four of the purposes, as recited in the preamble, for which the Constitution of the United States was established.
4. Tell how United States judges are chosen and how long they serve. Name two kinds of United States courts.
5. What is meant by the civil service? What attempt has been made of late years to reform it?
6. What authority is given to congress to enact laws in reference to inventions and literary productions? What is the term of a copyright? A patent?

7. Explain these terms: silver certificate, national bank note, 16 to 1, bullion, monometallism.
8. Name the county officers provided for by the statutes of Michigan. What county officers, if any, are elected at the spring election?
9. What are the provisions of the constitution of the State in regard to impeachment?
10. What changes have recently taken place in the President's cabinet?

Third Grade, Class B.

1. General arrangement and neatness of paper to count for this number.
2. Name two of the inalienable rights referred to in the Declaration of Independence.
3. Give the prominent differences between a territorial and a State government.
4. What prevents undue centralization of power in this country in the general government?
5. In case of a vacancy in the congressional representation from any state, how may it be filled?
6. How may an amendment to the state constitution be proposed and adopted?
7. What is the purpose of dividing legislative bodies into committees? What is a committee of the whole?
8. Give at least one chief duty of county clerk, judge of probate, circuit judge, justice of the peace, township treasurer.
9. How many acres in the S. ½ of the S. W. ¼ of the N. W. ¼ of section 16? Locate it by diagram.
10. Indicate the purposes of the Australian ballot system.

Third Grade, Class A.

1. General arrangement and neatness to count for this number.
2. Name two of the inalienable rights referred to in the Declaration of Independence.
3. Quote from the "Ordinance of 1787."
4. What was the origin of the dollar mark ($)?
5. Define a pardon, a reprieve, a commutation of sentence.
6. How may an amendment to the state constitution be proposed and adopted?
7. What is the purpose of dividing legislative bodies into committees? What is a committee of the whole?
8. Give at least one chief duty of county clerk, judge of probate, circuit judge, justice of the peace, township treasurer.
9. How many acres in the S. ½ of the S. W. ¼ of the N. W. ¼ of section 16? Locate it by diagram.
10. Indicate the purposes of the Australian ballot system.

GENERAL HISTORY.

First Grade.

1. Where was Troy and what was its destiny?
2. Compare the ancient Greeks and Romans as to originality, organizing and executive power, art, literature, character of great men, and influence upon modern times.
3. Mention four important characters of the French Revolution, telling why important.
4. (*a*) What European nations engaged in war in 1744, with what result, and why were Americans so enraged at the conditions of the treaty that terminated it?
   (*b*) What was this war called in Europe, what in America, and why was it waged partly on American soil?

5. State five important facts concerning Gladstone, two of the five showing the position taken by him on important questions in English politics.
6. The Holy Alliance: when formed, between what nations, for what object? How did it endanger the interests of the United States, and what did President Monroe do about it?
7. When did Germany demonstrate the power gained through good schools, and what other nations have since turned more attention to their educational systems?
8. Why were the crusaders so-called, what was the ultimate end sought, in what period did they occur, by whom were they chiefly carried on, and what beneficial results accrued to the world at large?
9. What makes Armenia particularly liable to brigandage and outrage, and what can you say of the Inquiry Commission recently sent to Sassoun?
10. In what foreign wars has the United States engaged since 1783, and what was the immediate cause of each?

Second Grade.

1. Explain meaning of the following: "Greece, though captive, subdued her conquerors." Why is this a compliment to the teacher's profession?
2. What men composed the Second Triumvirate, which one became the first emperor of Rome, and what new title did he then assume?
3. Compare the education of a Spartan boy with that of an Athenian.
4. (*a*) What European nations engaged in war in 1744, with what result, and why were Americans so enraged at the conditions of the treaty that terminated it?
   (*b*) What was this war called in Europe, what in America, and why was it waged partly on American soil?
5. Tell the story of Martin Luther.
6. Who was called "The Virgin Queen, and what were some of her characteristics?
7. Who were the following: Louis XVI, Frederick the Great, George III, Bismarck, Gladstone?
8. Where and when was the "Reign of Terror?" In what novel did Dickens describe it?
9. Give the principal events in the life of Joan of Arc.
10. What was "The Long Parliament," how long was it in session, and how dissolved? Give names of any leaders.

GEOGRAPHY.

First and Second Grades.

1. Locate and describe the plateau regions of the United States. Where are its volcanic regions? Its regions of most intense heat?
2. A trading vessel sails from New York to Rio Janeiro, thence to Liverpool, thence to Messina, thence to Stockholm, thence to New York. What is the probable cargo on each voyage?
3. What is the region of salt lakes? Locate the most important salt lakes of the globe.
4. State what you can of Cuba; size, climate, products, government, people, present troubles, etc.
5. To what three principal causes are differences in climate due? What determines the greater or less abundance of rainfall in particular regions?
6. Give the habitat of five important food plants,—three medicinal and two economic.
7. Name three important ship canals completed and opened during the early summer.

8. Name the principal mountain chains in or adjacent to Asia. Where do they lie and what are their directions?
9. What and where are San Francisco, Kiel, Magellan, Adelaide, Corinto, Ceylon, Kongo, Key West?
10. Name the three counties at the northern extremity of the lower peninsula of Michigan. Name the county at each extremity of the upper peninsula.

Third Grade, Class B.

1. General arrangement and neatness of paper to count for this number.
2. Contrast the climate of New Orleans with that of Denver and explain the cause of the difference.
3. Name the predominant mountain system and low plains of each of the grand divisions.
4. Of what does the empire of Japan consist? Give names of its principal cities.
5. Where would you go to load a vessel with a cargo of rice? Spices? India rubber? Bananas? Sugar?
6. How could you go by water from Vienna to Chicago? Name the bodies of water passed through, in order of passage.
7. Describe the Nile, the Ganges, and the Volga rivers. What large cities are on or near their banks?
8. Sketch an outline of the United States, and indicate approximately thereon the portions best adapted to manufacturing, agriculture, mining.
9. What county of Michigan was disorganized by the legislature of 1895? Describe its location, and state how its territory was divided.
10. Define erosion, watershed, glacier, crater, continental axis.

Third Grade, Class A.

1. General arrangement and neatness of paper to count for this number.
2. Why is the Ohio river more subject to floods than the Detroit?
3. What are some of the causes that determine the location of cities?
4. Explain how to teach a class of beginners the definitions of the following terms: lake, mountain, river, peninsula, strait.
5. At what places in Michigan are extensive lumber mills located? Salt wells? Copper mines?
6. Name five important rivers of the United States, and tell the principal use of each.
7. In what land beside our own would you like best to make your home? Why?
8. Sketch a map of Michigan, locating thereon and naming five rivers and five cities.
9. In what especial manner is the benefit of mountains and plateaus shown in tropical regions?
10. What portions of the United States are best adapted to manufacturing, agriculture, grazing, mining?

GEOMETRY.

First Grade.

1. Demonstrate: When two straight lines are cut by a third, if the alternate interior angles are equal, the two straight lines are parallel.
2. Erect a perpendicular at the end of a straight line.
3. Inscribe a hexagon in a circle and show that the sum of any three alternate angles is equal to four right angles.
4. Demonstrate: Two similar triangles are to each other as the squares of their altitudes.
5. (*a*) If $a : b :: c : d$, prove that $b : a :: d : c$.
   (*b*) also prove from the same that $a^2 : b^2 :: c^2 : d^2$.

6. At what time should the child be taught concrete geometry? When should he begin the study of demonstrative or formal geometry? Give reasons for your answer.
7. Demonstrate: Any two similar polygons are to each other as the squares of their homologous sides.
8. Describe a circumference passing through two given points and having its center in a given straight line. In what case would this be impossible?
9. Find the bisector of the angle that would be formed by two given lines, without producing the lines.
10. Divide a line A B into extreme and mean ratio.

GRAMMAR.

First and Second Grades.

1. General neatness (arrangement of headings and subheadings, separation and classification of answers) will count for this number.
2. The Committee of Fifteen makes a two-fold division of grammar, as to its educational value; i. e., the subjective and objective. Explain the advantages of each.
3. What is meant by the "close" and the "loose" punctuation, and which is now the most used? Give a sentence to illustrate the close punctuation.
4. (*a*) Give the plurals of wharf, cherub, Henry, crisis, x.
   (*b*) Give the feminine of czar, testator, sultan, duke, earl.
   (*c*) Give the possessive, both singular and plural, of lily, father-in-law, we, pony, goose.
5. Discuss the various subdivisions of transitive and intransitive verbs, as made by the different grammarians with which you are familiar.
6. Parse every word in the sentence: Did you tell me to go?
7. Analyze the following by brief method:

   "Lowliness is young ambition's ladder,
   Whereto the climber upward turns his face;
   But, when he once attains the topmost round,
   He then unto the ladder turns his back,
   Looks in the clouds, scorning its base degrees
   By which he did ascend."
8. Write not less than 150, nor more than 250 words, on one of the following topics: [30 credits.]

Correlation of studies.	Free Coinage.
Benjamin Franklin.	Child-Study.
National Educational Association.	A Spelling School.

Third Grade, Class B.

1. General neatness of this paper (arrangement of headings and subheadings, separation and classification of answers) will count for this number.
2. Punctuate the following, giving reasons therefor:

   "So he punctuates best who needs to punctuate least that is the better the words and clauses are arranged in a sentence and the less punctuation it needs the more clear and effective it is."
3. It has been said that words are the ammunition in the battery of intelligence, the steam in the engines of thought, the true coin in the change-marts of scholastic culture.
   (*a*) Classify above sentence and point out its subject.
   (*b*) Name all the predicate complements of "are."
   (*c*) Parse *it* and *that*.
4. The Committee of Ten says that language work, from the beginning of the third year to the end of the sixth, should be of three kinds. What are they?

5. Give words (in sentences when necessary) to illustrate the following:
   (1) Personal pronoun, 3d, singular, common gender.
   (2) Past perfect, 3d, singular, indicative, passive of "see."
   (3) Interrogative, present perfect, 3d, singular, indicative, of a certain verb that is the only pure copula.
   (4) A word that may be either a subordinate conjunction, a relative pronoun, or an adjective, according to use.
   (5) A verb expressing state.
   (6) A pronoun that is frequently used as anticipative subject.
   (7) The singular of a word whose plural ends in i.
   (8) A word having no singular.
   (9) A defective verb.
   (10) A word that forms its possessive singular by adding the apostrophe only.
6. Choose the right verbs from these sentences, giving reasons for choice:
   (*a*) I (seen or saw) him, when he (did or done) it.
   (*b*) (Lay or lie) the baby on the couch, and you can (lay or lie) on the bed.
   (*c*) When he (sat or set) out for Boston, (he sat or set) his valise on the car seat.
   (*d*) I can (learn or teach) the dog to start as soon as he knows the bell has (rung or rang).
7. Write a good outline for an essay on "Crows." Do you teach your pupils always to make an outline before writing an essay?
8. Write not less than 150, nor more than 250 words, on one of the following topics. [30 credits.]

Value of Language Study.	A Summer Outing (imaginary).
Committee of Fifteen.	American Inventions.
Michigan Summer Resorts.	

Third Grade, Class A.

1. General neatness of this paper (arrangement of headings and subheadings, separation and classification of answers) will count for this number.
2. Punctuate the following, giving reasons therefor:
   "So he punctuates best who needs to punctuate least that is the better the words and clauses are arranged in a sentence and the less punctuation it needs the more clear and effective it is."
3. What is the purpose of teaching grammar? Of language lessons? How do the methods differ?
4. Make necessary corrections and give reasons:
   (*a*) They are both alike.
   (*b*) Either you or I are in error.
   (*c*) Which of the group of men is the taller?
   (*d*) There goes Mr. and Mrs. Smith.
   (*e*) It could not have been her.
5. Mention three devices you have successfully used for interesting small children in language work.
6. Choose the right verbs from these sentences, giving reasons for choice:
   (*a*) I (seen or saw) him, when he (did or done) it.
   (*b*) (Lay or lie) the baby on the couch, and you can (lay or lie) on the bed.
   (*c*) When he (sat or set) out for Boston, he (sat or set) his valise on the car seat.
   (*d*) I can (learn or teach) the dog to start as soon as he knows the bell has (rung or rang).
7. Give plural forms for the following: son-in-law, focus, toothbrush, folio, money, teaspoonful, alumnus, court-martial, buffalo, basis.
8. Write not less than 150, nor more than 250 words, on one of the following topics. [30 credits.]

Value of Language Study.	A Summer Outing (imaginary).
Committee of Fifteen.	American Inventions.
Michigan Summer Resorts.	

ORTHOGRAPHY.

First and Second Grades.

1. Define synonym, homonym, root, primitive, derivative.
2. Give a word containing each of the following, underscoring the letter that answers to these consonant sounds; a mute labial aspirate, a mute dental subvocal, a labio-nasal, a semi-vowel dental aspirate, a semi-vowel lingual subvocal.
3. Tell which of the following words you would divide at the end of a line and where: abrogated, attraction, broad, courageous, herbivorous.
4. Write a list of five words each of which, without change of spelling or pronunciation, may be used in two or more distinct significations. Use sentence to illustrate.
5. (*a*) Why is final e retained in *courageous* and dropped in *raging?* Why is *differing* spelled with one r and *deferring* with two? What letter is never doubled?
   (*b*) Of what value are rules of spelling?

NOTE.—The above questions will count fifty per cent, and the spelling of the list of words fifty per cent.

Third Grade, Both Classes.

1. What diacritical marks, if any, are used with c, x, and z, respectively?
2. Give the meaning of the following prefixes and suffixes, and form derivatives by joining them to primitives: in, ad, ante, ate, ful, pre, semi, ment, ism, sub.
3. Use these words in sentences: links, lynx, vale, veil, statue, statute, compliment, complement, effect, affect.
4. Define elementary sound, diphthong, substitute, dieresis, cedilla.
5. Indicate the correct pronunciation of the following list of words, and in a second column show an incorrect pronunciation that is frequently given: can't, suffice, often, duty, Hawaii, dictionary, or, history, alternate (both noun and adjective).

NOTE.—The above questions will count fifty per cent, and the spelling of list of words fifty per cent.

LIST OF WORDS.

All Grades.

1. Cincinnati.
2. scientific.
3. difference.
4. Chautauqua.
5. obsequious.
6. tacit.
7. territorial.
8. Nicaragua.
9. omniscience.
10. beleaguer.
11. consonant.
12. Worcester.
13. appareled.
14. etymology.
15. Huguenot.
16. integer.
17. audible.
18. Britain.
19. poniard.
20. quandary.
21. anthracite.
22. alpaca.
23. bivouac.
24. stenographer.
25. condescend.

PENMANSHIP.

All Grades.

1. Write and name the principles or elements of the system you teach.
2. Describe a correct position at the desk. (Knowledge of subject to count 40% and penmanship 60%.)

PHYSICS.

First Grade.

1. Give diagram with dimensions of a lever so arranged that the downward pressure of your own weight will lift a ton. Also of a lever so arranged that a lift equal to your own weight will raise a ton. Arrange the levers so that the power or pressure travels three feet. How far will the ton move in each case?

2. A casting weighing 1,500 pounds is to be raised ten feet. Make a diagram of a set of pulleys so that you could raise the casting. State the number of ropes and the distance.
3. What is the theoretical height to which water can be raised by the common pump, when the mercurial barometer stands at 28 inches?
4. What apparatus is used to show the reflection of sound? The refraction of sound?
5. Two lamps, one 16 candle power, the other 25 candle power, are 10 feet apart. Where must a screen be placed to balance?
6. (*a*) State causes which modify the intensity of sound. (*b*) A train whistle is sounded at three stations; at the second station it is one-fourth as intense as at the first; at the third station one-twenty-fifth as intense as at the first; second station is three miles from the first. What is the distance from first to third?
7. A pine pattern weighs three pounds. What will be the weight of the casting of iron? What will be the weight of a casting of brass?
8. State velocity of light. Name three methods of finding velocity of light. Find the distance to a star whose light started to the earth at the time of your birth and has just arrived?
9. How is the principal focus of a convex lens found? Of a concave lens?
10. What is potential? How could you recognize electrical pressure? State method of producing electro-motive force.

Second Grade.

1. What kind of levers are involved in the treadle of a sewing machine?
2. Two children play seesaw; one weighs 100 pounds and the other 50 pounds. How divide between them a 12-foot board?
3. What is the pressure of the atmosphere on the square inch at the earth's surface?
4. A body whose specific gravity is 3.5 weighs 4 pounds in water; what is its weight in air?
5. Why does a teaspoon standing in a tumbler of water appear bent?
6. A Fahrenheit thermometer registers 100 degrees; what should be the reading of a centigrade thermometer?
7. What kind of glasses are required for nearsightedness?
8. Explain why a person on the water can hear sounds farther and plainer when the weather is foggy.
9. What is an electro-magnet? What are insulators?
10. Give three methods of transmitting heat, and illustrate each by an example.

PHYSIOLOGY.

First and Second Grades.

1. General neatness to count for this number.
2. Define anatomy, physiology, and hygiene, and state what relation each bears to the other.
3. Name the digestive fluids in the order of their importance. What kind of food does each act upon, and by what organ or organs is each secreted?
4. Explain the difference between excretory and secretory glands, and tell to which of these classes the following belong: liver, kidney, sebaceous, pancreas, and spleen.
5. Explain fully how the digested food enters the circulation and how it is carried to the different parts of the body.
6. Is alcohol digested when taken into the system? If not, how does it enter the circulation? Why is it that the breath of a person who has been taking alcoholic drinks, has such a strong odor of alcohol?

7. Locate the kidneys. Describe them by drawings. What function do they perform?
8. What is the portal circulation? Describe it and give its use.
9. What is the harmful property of tobacco? Why are cigarets especially harmful?
10. Name the organs of the special senses. Describe the eye and illustrate by drawings.

Third Grade, Class B.

1. General neatness to count for this number.
2. Define digestion. Where does it take place?
3. What is the object of the circulation of the blood? About how many pounds of blood in a healthy man weighing 150 pounds?
4. What is liver sugar? How and where is it formed? What effect does the taking of beer into the system have upon the liver?
5. What are the harmful properties of gin, tobacco, tea, cider, and opium? In brief, what is the effect of each of these properties upon the system?
6. What glands are situated in the skin? What purposes do they serve?
7. What effect has alcohol upon animal tissues? What experiments might the members of a class perform to show this?
8. Name and describe the different joints found in the human skeleton.
9. What are sensor nerves? Motor nerves? How do they differ in construction and use?
10. What portions of the body are developed most by each of the following exercises: rowing, swimming, running, Indian club swinging, and riding a wheel?

Third Grade, Class A.

1. General neatness to count for this number.
2. At what age should the study of physiology begin? Outline a lesson for beginners in the subject.
3. What are the uses of the skin? Why should it be kept clean by frequent baths?
4. What is muscle? How many different kinds are there? Describe some certain muscle by making a drawing of it.
5. Why is it not well to wash food down with water or tea while eating?
6. Make a drawing of a section of the heart, showing auricles, ventricles, and blood vessels leading to and from it.
7. About how many respirations and pulse beats in a minute? What is the normal temperature of the body? How long does it take the blood to make a complete circuit of the body from left ventricle back to left ventricle again?
8. What provisions are made by nature for the protection of the eye? What are tears and what purpose do they serve?
9. What exercises would you recommend for the expansion of the chest and for overcoming the stooping posture so often acquired at the desk?

READING.

All Grades.

I.

Yet love will dream and faith will trust,
(Since he who knows our needs is just),
That somehow, somewhere, meet we must.
Alas for him who never sees
The stars shine through his cypress trees!
Who, hopeless, lays his dead away,
Nor looks to see the breaking day
Across the mournful marbles play;
Who hath not learned in hours of faith,
The truth to sense and flesh unknown,
That Life is ever lord of Death,
And love can never lose its own!

—*Whittier.*

II.

What doth the poor man's son inherit?
Stout muscles and a sinewy heart,
A hardy frame, a hardier spirit;
King of two hands, he does his part
In every useful toil and art,—
A heritage it seems to me,
A King might wish to hold in fee.

What doth the poor man's son innerit?
Wishes o'erjoyed with humble things,
A rank adjudged to toil-worn merit,
Content that from employment springs,
A heart that in his labor sings,—
A heritage it seems to me,
A king might wish to hold in fee.

O, poor man's son, scorn not thy state;
There is worse weariness than thine
In merely being rich and great:
Toil only gives the soul to shine
And makes rest fragrant and benign,—
A heritage, it seems to me,
Worth being poor to hold in fee.

—*Lowell.*

III.

Life bears us on like the current of a mighty river. Our boat at first glides down the narrow channel, through the playful murmurings of the little brook and the windings of its happy border. The trees shed their blossoms over our young heads; the flowers on the brink seem to offer themselves to our hands; we are happy in hope, and we grasp eagerly at the beauties around us, but the stream hurries on and still our hands are empty.

Our course in youth and manhood is along a wider and deeper flood, amid objects more striking and magnificent. We are animated by the moving picture of enjoyment and industry which passes before us; we are excited by some shortlived success or made miserable by some equally shortlived disappointment. But our energy and our dependence are both in vain; the stream bears

us on, and our joys and our griefs are alike left behind us. We may be shipwrecked, but we cannot anchor. Our voyage may be hastened, but it cannot be delayed. Whether rough or smooth, the river hastens toward its home, till the roar of the ocean is in our ears, and the tossing of the waves is beneath our keel, and the land lessens from our eyes, and the floods are lifted up around us, and we take our last leave of the earth and its inhabitants; and of our further voyage there is no witness but the Infinite and the Eternal.

—*Heber.*

IV.

I don't know who makes New England weather; but I think it must be raw apprentices in the weather clerk's factory who experiment and learn *how* in New England, for board and clothes, and then are promoted to make weather for countries that require a good article and will take their custom elsewhere, if they don't get it.

There is a sumptuous variety about the New England weather that compels the stranger's admiration and regret. The weather is always doing something there, always attending strictly to business, always getting up new designs and trying them on the people to see how they will go. But it gets through more business in the spring than in any other season.

But, after all, there are at least one or two things about that weather which we residents would not like to part with. If we had not our bewitching autumn foliage, we should still have to credit the weather with one feature which compensates for all its bullying vagaries; the ice storm, when a leafless tree is clothed with ice from the bottom to the top, ice that is as bright and clear as crystal; every bough and twig is strung with ice beads, frozen dew drops, and the whole tree sparkles cold and white, like the Shah of Persia's diamond plume.

—*Mark Twain.*

SCHOOL LAW.

All Grades.

1. Mention some of the information that must be contained in the annual report of the township board of school inspectors.
2. Give an outline of the procedure necessary to change the boundaries of a school district.
3. How may date of annual school meeting be changed from September to July?
4. Name five things necessary to a valid contract for teaching.
5. Name some of the articles which our school law declares to be necessary appendages to a schoolhouse.

THEORY AND ART.

All Grades.

1. What are some of the objections to the prize system which is sometimes used in school?
2. When is a parent or teacher justified in the use of corporal punishment? Should punishment be inflicted in the presence of the school?
3. In moral instruction, ought the lessons to treat of virtuous conduct, or wrong doing? Why?
4. What suggestions are given in the State Manual and Course of Study for teaching reading to pupils of the second and third grades?
5. What assistance would you give pupils in preparing for recitations?

NOTE 1.—Many of the questions in this topic used at teachers' examinations during the year 1896-6, will be taken from "White's School Management," one of the books adopted by the State Teacher's Reading Circle.

NOTE 2.—Copies of of the State Manual and Course of Study may be obtained on application to the Superintendent of Public Instruction.

UNITED STATES HISTORY.

First and Second Grades.

1. Name the three kinds of government under which the various colonies were founded, with their distinguishing characteristics and an example of each.
2. What question created the first great division into political parties ever made in the United States? Who were the leaders of the two factions, what class of people supported each, and what were the main arguments advanced by each?
3. Mention some of the causes that led to the adoption of protection to American manufacturers. Why did the South oppose a protective tariff?
4. Give the names of five men who have, in your opinion, done most to shape American history, and state the special manner in which each exerted an influence.
5. Why does 1689 mark the end of the first general epoch in American history, what date closes the second epoch, and what two great struggles nearly fill up this second period?
6. For how many years did the Missouri Compromise avert trouble, by the admission of what state was the slavery struggle renewed, and by what bill was the Compromise finally annulled? Explain the principle of this bill and the trouble it brought on in the western states.
7. What was the Nicaraguan trouble and how did it terminate? What is the prime object of the recent alliance between Nicaragua and Honduras?
8. Give some definite statement concerning any five of the following:
   (*a*) James G. Carlisle and the Silver Question in the South.
   (*b*) American Ships at Kiel.
   (*c*) Harlem Canal and the Greater New York.
   (*d*) Strained relations of the United States and Spain.
   (*e*) The New Secretary of State.
   (*f*) Chicago Drainage Canal and Lake Navigation.
   (*g*) Legislative Appropriations in Michigan.
   (*h*) The New American Ocean Liner, St. Louis.
   (*i*) Condition of the Iron Trade.
   (*j*) The Income Tax.
   (*k*) Governor Altgeld.
   (*l*) The New Attorney General.
   (*m*) Trial of Eugene V. Debs.

9 and 10. Give an idea of the character and public life of the recently deceased United States Secretary of State, and mention some diplomatic affairs with which he had to deal during his connection with Cleveland's cabinet. Who is his successor?

Third Grade, Class B.

1. General appearance of paper to count for this number.
2. Make a table of the thirteen colonies according to the following plan:

Colonies.	When first settled.	Where.	By whom.	Original government.

3. Give some idea of the tariff laws and the money systems of the several states at the close of the Revolution. Of whom did Daniel Webster say "He touched the dead corpse of public credit and it sprang upon its feet?"
4. The site of a certain city in Pennsylvania was long called the "Gateway of the West." What French fort was built there in 1754, what did the English call it, and what can you say of the statesman after whom it was finally named?

5. What President's administration was called "the era of good feeling," and why?
6. Locate the following in history: Vikings, Mound-builders, Separatists, Cavaliers, and Iroquois.
7. What two Indian reservations have recently been opened to settlers, and which had the more exciting settlement?
8. How and when did Florida come into English possesion, and what territory was ceded to Spain as indemnity for the loss of Florida?
9. Give some definite statement concerning any five of the following:
   (*a*) James G. Carlisle and the Silver Question in the South.
   (*b*) American Ships at Kiel.
   (*c*) Harlem Canal and the Greater New York.
   (*d*) Strained relations of the United States and Spain.
   (*e*) The New Secretary of State.
   (*f*) Chicago Drainage Canal and Lake Navigation.
   (*g*) Legislative Appropriations in Michigan.
   (*h*) The New American Ocean Liner, St. Louis.
   (*i*) Condition of the Iron Trade.
   (*j*) The Income Tax.
   (*k*) Governor Altgeld.
   (*l*) The New Attorney General.
   (*m*) Trial of Eugene V. Debs.
10. Briefly describe two pivotal battles of the Civil War.

Third Grade, Class A.

1. General appearance of paper to count for this number.
2. Make a table of the thirteen colonies according to the following plan:

Colonies.	When first settled.	Where.	By whom.	Original government.

3. Of what use is a national flag, and why is it a good thing to have ours floating over the schoolhouses?
4. Tell the story of the "minute men" as to a class of young children. What personal explanation could you make of it?
5. What does Bunker Hill monument commemorate, what famous foreigner laid its corner stone, and what eloquent orator officiated at its dedication?
6. Quote from at least two poems of history.
7. Tell something of the assistance rendered our cause by women during the Revolution and the Civil War.
9. Give some definite statement concerning any five of the following:
   (*a*) James G. Carlisle and the Silver Question in the South.
   (*b*) American Ships at Kiel.
   (*c*) Harlem Canal and the Greater New York.
   (*d*) Strained relations of the United States and Spain.
   (*e*) The New Secretary of State.
   (*f*) Chicago Drainage Canal and Lake Navigation.
   (*g*) Legislative Appropriations in Michigan.
   (*h*) The New American Ocean Liner, St. Louis.
   (*i*) Condition of the Iron Trade.
   (*j*) The Income Tax.
   (*k*) Governor Altgeld.
   (*l*) The New Attorney General.
   (*m*) Trial of Eugene V. Debs.

9 and 10. Write a short essay on the author of the Emancipation Proclamation, referring to his parentage, early life and schooling, power in oratory, traits of character, and service to his country.

V. QUESTIONS PREPARED BY THE SUPERINTENDENT OF PUBLIC INSTRUCTION FOR THE REGULAR EXAMINATION, OCTOBER 16 AND 17, 1895.

ALGEBRA.

Second Grade.

1. General excellence and neatness of paper to count for this number.
2. Factor $x - 4$, $x^4 - 1$, $3x^2 + 23x + 14$, $x^2 + x - 110$, and $x^{\frac{1}{2}} - y^6$.
3. Simplify the following by removing brackets:—
   $a - (b - c) + a + (b - c) + b - (c + a)$, $a + [b + \{a - (b + a)\}] \frac{1}{4} x - \frac{1}{4} y (\frac{2}{3} y - \frac{1}{3} z)$, $2\sqrt{2}(x^2 - 1)$, and $4 + 2(x - 3y)^2$.
4. (*a*) If a is one factor of b, what is the other?
   (*b*) Using x, y, and z, to represent the hundreds, tens, and units, give the algebraic expression to represent an unknown number of three digits.
   (*c*) Give the theorems for squaring the sum and the difference of two quantities.
5. A farmer wishes to divide 11 bushels of potatoes between two poor families in such ratio that one shall have a bushel more than one-fourth as much as the other. How much can he give each?
6. If 1 be added to the numerator of a fraction, it equals 1-5; if 1 be taken from the denominator, it equals 1-7. What is the fraction?
7. Find the time between 3 and 4 o'clock at which the hands of a clock are together.
8. Mention and illustrate three methods of elimination, using the following equations: $8x + 5y = 19$ and $5x - 4y = 7$.
9. A rectangle is of the same area as another which is 6 yards longer and 4 yards narrower; it is also of the same area as a third which is eight yards longer and five yards narrower. What is its area?
10. At an election the majority was 162, which was 3-11 of the whole number of voters. How many voted on each side?

ARITHMETIC.

Second Grade.

NOTE.—These questions should be marked on the scale of 50 credits, and the examiner should test the applicant in mental arithmetic for the remaining fifty credits.

1. Define and make drawings representing a cube, a square, a circle, a circumference, and the perimeter of an isosceles triangle.
2. An agent sells woolen goods to the amount of $1,675.80 at a commission of 5%, and with the proceeds purchases raw material at a commission of 2½%. What is the amount of the agent's commission?
3. How much more will the lumber cost to fence a rectangular field 80 rods long and 45 rods wide than to fence a square field of the same area, if the fence is five boards high and each board six inches wide, lumber being worth $20 a thousand?
4. A regiment of soldiers consisting of 1,100 men, was furnished with bread sufficient to last 8 weeks, allowing each man 15 ounces per day. If the number of men is reduced by 100 and ⅛ of the food is found unfit for use, how many ounces per day should each man receive, that the balance may last 9 weeks?
5. A merchant sold two carloads of potatoes for $560. Car No. 2 brought ⅓ more than car No. 1. On car No. 2 he gained 60%, and on car No. 1 he lost 20%. How much did each carload cost him?

Third Grade, Class B.

1. (*a*) If the area of a circle whose diameter is 5 ft. be 22.5 sq. ft., what will be the area of a circle 9 ft. in diameter?
   (*b*) If the contents of two cubical blocks are to each other as 64 : 343, what is the ratio of their edges?
2. Simplify the following:
   (*a*) $\dfrac{\frac{4}{5} \times 7\frac{1}{2} + .08}{\dfrac{6}{1.5 + \frac{1}{2}}} = ?$ (*b*) $\dfrac{100 - 5 \times 6.4}{4 - 16 \div 8} = ?$
3. (*a*) If $\frac{3}{4}$ of 6 bushels of wheat cost $4½ what will $\frac{4}{5}$ of 2 bushels cost?
   (*b*) $\frac{1}{8}$ of 20 per cent of $3\frac{3}{4}$ pecks, is what per cent of 10 bushels?
4. I received a 6% dividend on Philadelphia city railroad stock, and invested the money in the same stock, at 75%. My stock had then increased to $16,200. What was the amount of my dividend?
5. Explain your method of working problems in interest by stating and working short problems illustrative of the various cases.

Class A.

1 (*a*) Which is the greater $\frac{22}{7}$ or $\frac{355}{113}$, and what is their difference?
   (*b*) Reduce to a common denominator $\frac{1}{4}$, 1.02, 5, and .016.
2. Simplify the following:
   (*a*) $\dfrac{\frac{4}{5} \times 7\frac{1}{2} + .08}{\dfrac{6}{1.5 + \frac{1}{2}}} = ?$ (*b*) $\dfrac{100 - 5 \times 6.4}{4 - 16 \div 8} = ?$
3. (*a*) If $\frac{3}{4}$ of 6 bushels of wheat cost $4½, what will $\frac{4}{5}$ of 2 bushels cost?
   (*b*) $\frac{1}{8}$ of 20 per cent of $3\frac{3}{4}$ pecks, is what per cent of 10 bushels?
4. A is 90° west of B. When it is ten o'clock p. m. at A, what time is it at B? When four o'clock a. m. at B, what time at A?
5. What must be the rate of interest on bonds that net the purchaser 5% on his investment, when bought at 105% of their par value?

INTELLECTUAL OR MENTAL ARITHMETIC.

NOTE.—A member of the Board will examine candidates either singly or in classes of five or ten, testing attentive power, quickness to grasp the salient features of a problem, accuracy and rapidity of work, clearness of explanation, and simplicity of analysis.

1. What must I pay for 60 feet of border at 5 cents a yard?
2. How many yards of border 18 inches wide will it take to go around a room 12 ft. wide and 15 ft. long?
3. How many yards of cloth at 50 cents a yard must be given for 6 barrels of flour at $4 a barrel?
4. It is four miles from the Grand Trunk depot at Lansing to the Agricultural College. How many rods is it?
5. I paid a man $1.60 for mowing 2 acres of grass. How much did I pay him per square rod?
6. How many lots of 40 square rods can be made from an acre? How many of 16 square rods? Of 10 square rods?
7. If a cubic foot of clay will make ten bricks, how many bricks can be made from a cubic yard?
8. If 2 men can do a piece of work in 16 days, how long will it take 8 men to do twice as much?
9. If a boy have five eggs, how many more must he have to make $\frac{5}{6}$ of a dozen?
10. If building $\frac{5}{8}$ of a wall cost $15, how much will it cost to build $\frac{3}{8}$ of the wall?
11. Mr. Jones sells a wagon which cost him $40, for $\frac{5}{8}$ of its cost. What was his loss per cent?

12. How many times must a half-foot rule be applied in measuring 2 rods?
13. How many blocks containing ⅔ square feet, will it take to pave a space containing 9⅔ square feet?
14. How many bushels will a bin 4x5x4½ ft. hold?
15. If six men can mow a field in 2½ hours, how long will it take 5 men to mow the field?
16. A man puts ¼ of a carload of potatoes in two bins. If one bin holds twice as much as the other, what part of a carload in each bin?
17. How many two-ounce bullets can be made from 5¼ pounds of lead?
18. What will be the postage on 3 ounces of sealed, or first-class mail matter? On 5½ ounces? On 1½ pounds?
19. The premium of insurance at ½% is $12. What is the amount insured?
20. Mr. Blakely paid $100 to insure his house for $4,000 for five years. What was the yearly rate of insurance?
21. A merchant sends his agent $515 to invest in flour at $4 a barrel. If the agent's commission is 3%, how many barrels of flour can he buy?
22. Hard coal is 1.5 times as heavy as water. If a cubic foot of water weighs 6½ pounds, how many pounds will four cubic feet of the coal weigh?
23. ½ of 5 is what per cent of 10?
24. ½ bushel is what per cent of 4 quarts?
25. Square 17; 32; 48; 104.

BOTANY.

Second Grade.

1. General excellence and neatness of paper to count for this number.
2. Name and define the divisions of botany.
3. Name five flowerless plants and describe botanically one of them.
4. Define a typical flower, a perfect flower, a regular flower, a complete flower, a sterile flower.
5. Make drawings illustrating the different ways in which the anther is attached to the filament.
6. Mention two plants propagated by seeds, two by stolons, two by runners, two by tubers, and two by buds.
7. Explain the circulation of sap in the tree. How does this differ from the circulation of blood in the human body?
8. What parts of the following plants are used for food: corn, cabbage, radish, celery, cucumber, pumpkin, pear, strawberry, potato, and mushroom?

9 and 10. The examiner should place in the hands of applicants acorns, maple seeds, or peas, for description by words and drawings.

CIVIL GOVERNMENT.

Second Grade.

1. General excellence and neatness of paper to count for this number.
2. How long must an alien live in this country to be eligible to a seat in the national House of Representatives?
3. Distinguish between the militia and the regular army. Between the militia and volunteers.
4. What is secured to negroes by the thirteenth amendment? By the fourteenth? By the fifteenth?
5. Define citizen, elector, poll, quorum, veto, verdict, treaty, consul.

6. What is the purpose of bail? Why regarded as an important element of liberty?
7. What do you understand by "The ordinance of 1787?"
8. Trace a dollar from the time it leaves the farmer's hand as taxes, till it reaches the teacher as salary.
9. Why is there no Committee of Ways and Means in the Senate?
10. To whom would a member of Congress send his resignation, if he desired to retire from office? How would the vacancy be filled?

Third Grade, Class B.

1. General excellence and neatness of paper to count for this number.
2. What is the name of the officer in Michigan townships who makes the assessment of taxes? What officer collects the taxes?
3. In what cases may private property be taken for public use.
4. What topics in civil government have been called to mind and illustrated by any events of the past twelve months?
5. What is meant by speaking of the colonies as royal provinces, charter government, or proprietary government?
6. What is meant by extradition?
7. If two persons should claim a seat in Congress, who would decide between them?
8. Give the preamble of the Constitution of the United States?
9. What is the difference between a grand jury and a petit jury?
10. What is a capital crime? An indictment?

Third Grade, Class A.

1. General excellence and neatness of paper to count for this number.
2. Name the incorporated villages in your county. How may a village become incorporated?
3. State five duties of a good citizen.
4. Distinguish between a pure democracy and a republic.
5. What is meant by speaking of the colonies as royal provinces, charter government, or proprietary government?
6. An alien living in this country has children born here; are they alien or citizen?
7. If two persons should claim a seat in Congress, who would decide between them?
8. In what way may the schools aid in securing good government?
9. Explain the difference between a township and a county.
10. What is a capital crime? An indictment?

GENERAL HISTORY.

Second Grade.

1. General excellence and neatness of paper to count for this number.
2. Name five prominent characters in Grecian history, stating why each is prominent.
3. Mention the characteristics of Cæsar which made him powerful and those which made him weak. What was his object in life and why was he opposed? Was his death a blessing or misfortune to Rome? [20 credits.]
4. Tell the story of the so-called "Invincible Armada." What effect did its destruction have upon the future of America?
5. What is the present status of affairs in Cuba, and why do many think the United States ought to recognize her as a belligerent power?

6. Mention some of the reigning sovereigns, famous authors, and great events of the 16th century.
7. Who was William Pitt and in what way was he connected with American history?
8. What period is included in the "Dark Ages" and why is it so called?
9. Locate the following in history: Marshal Ney, William of Orange, Louis XVI, George III, Richard III.

GEOGRAPHY.

Second Grade.

1. General excellence and neatness of paper to count for this number.
2. About how many miles of coast line has Michigan? Name five of the principal lake ports in each peninsula.
3. Locate and give a definite statement about each of the following: Vesuvius, Cuba, Nile, Liverpool, Honolulu, Yukon, Venice, Chattanooga, Armenia, Ishpeming.
4. Name some of the ways in which man makes use of districts which, in a state of nature, are agriculturally waste.
5. Explain why the greater part of the population of Mexico is in the eastern section.
6. What conditions explain the rapid growth of Chicago?
7. From what countries do we obtain the following: palm, banana, mahogony, olive, cinnamon, redwood, cocoa, orange, nutmeg?
8. Why was Australia naturally less favorably situated for the development of a high degree of civilization than was America?
9. Locate five straits or channels which you consider as most important highways for marine travel.
10. Locate from three to five cities in Michigan on the main line of each of the following railroads: Lake Shore & Michigan Southern, Grand Rapids & Indiana, Chicago & West Michigan.

Third Grade, Class B.

1. General excellence and neatness of paper to count for this number.
2. Draw a map of your county, locating the railroads, townships, and principal cities and villages.
3. State five good reasons why Michigan is one of the best States in the Union in which to have a home.
4. How do you account for the climate along the coast of Alaska? Of Labrador?
5. State briefly some important facts concerning Texas; e. g., comparative size, situation, slope, products, history.
6. Define prairie, llanos, pampas, steppes, silvas.
7. Name and locate three capes on the coast of South America, and two groups of islands near the coast.
8. Mention briefly the physical features, government, and productions of Australia.
9. Explain the wonderful fertility of the plains of Lombardy in northern Italy. Mention some other district that is fertile for the same reason.
10. Compare the Chinese Empire with the Empire of Japan as to area, climate, and population.

Third Grade, Class A.

1. General excellence and neatness of paper to count for this number.
2. Draw a map of your county, locating the railroads, townships, and principal cities and villages.

3. State five good reasons why Michigan is one of the best States in the Union in which to have a home.
4. How do you account for the climate along the coast of Alaska? Of Labrador?
5. What is meant by a river system? Name two important river systems of each grand division.
6. Define prairie, llanos, pampas, steppes, silvas.
7. Explain the difference in climate in eastern and western Europe.
8. Mention briefly the physical features, government, and productions of Australia.
9. Explain latitude and longitude as to a class.
10. Compare the Chinese Empire with the Empire of Japan as to area, climate, and population.

GRAMMAR.

Second Grade.

1. General neatness of paper (arrangement of headings and sub-headings, separation and classification of answers) should be *carefully* noted for this number.
2. Define and illustrate: relative adverb, impersonal verb, subject accusative, personification, false syntax.
3. Why do some grammarians under certain conditions classify *it* as "anticipative subject?" Give a sentence where it is so used.
4. Use the following words first as adjectives, and then as adverbs: more, less, well, much, all.
5. Correct the following wherever necessary, giving reasons for changes:
   (*a*) There is no science so practical and so useful as chemistry.
   (*b*) His kind and cheerful disposition were much admired.
   (*c*) Have you heard of him receiving his certificate yesterday?
   (*d*) Tell me whom you received the book from and whether you expected to have received it.
   (*e*) She came very soon after you had went away.
6. Parse each word of the following: Let him attack me, if he dare.
7. How does the so-called "brief method" of analysis differ from the ordinary method of analyzing sentences? Analyze the following by brief method: (Do not diagram.)
   "There is a class among us so conservative that they are afraid the roof will come down, if you sweep off the cobwebs."
8. Write not less than 150, nor more than 250 words, on one of the following subjects:

Bees.	Frederick Froebel.	School Day at the Fair.
Indian Summer.	The Early Life of Washington.	Summer Excursions.

NOTE.—Capitalization, punctuation, paragraphing, diction and grammatical construction should all be *carefully* criticised by examiner in marking this question, which counts for thirty credits.

Third Grade, Class B.

1. General neatness of paper (arrangement of headings and sub-headings, separation and classification of answers) should be *carefully* noted for this number.
2. Define declension, conjugation, synopsis, contraction, and abridgment.
3. What good and what evil results may follow the use of the diagram?
4. Use each of the following verbs in a sentence with a complement, and explain the nature of each complement: become, act, blow, walk, appoint.
5. Define and give principal parts of five irregular verbs in the use of which errors commonly occur.
6. Write a sentence containing a verb in the active, present, potential, progressive; rewrite, changing to passive voice and explaining if any other changes are necessary.

7. "Fourscore and seven years ago our fathers brought forth upon this continent a new nation, conceived in liberty and dedicated to the proposition that all men are created equal."

   Diagram or analyze the above and select the following: An inseparable phrase; an appositive clause, with the word it modifies; a compound participial phrase, with the word it modifies; also tell what kind of a clause was abridged to produce this participial phrase.

8. Write not less than 150, nor more than 250 words, on one of the following subjects:

Bees.	Frederick Froebel.	School Day at the Fair.
Indian Summer.	The Early Life of Washington.	Summer Excursions.

NOTE.—Capitalization, punctuation, paragraphing, diction, and grammatical construction, should all be *carefully* criticised by examiner in marking this question, which counts for thirty credits.

Third Grade, Class A.

1. General neatness of paper (arrangement of headings and sub-headings, separation and classification of answers) should be *carefully* noted for this number.
2. Define declension, conjugation, synopsis, contraction, and abridgment.
3. What is your understanding of the difference between language lessons and technical grammar?
4. Mention three common errors in the use of language, and give reasons for correcting.
5. Define and give principal parts of five irregular verbs in the use of which errors commonly occur.
6. (*a*) Write a simple sentence about two children who go to school.
   (*b*) Expand the same sentence so as to make it compound complex.
   (*c*) Point out the various parts of speech it then contains.
7. (*a*) According to the Committee of Ten, when should children begin to compose in writing?
   (*b*) Which should first be taught, the art of reproduction or of composition? Why?
8. Write a short carefully punctuated letter, with the address of envelope. [30 credits.]

ORTHOGRAPHY.

All Grades.

1. What is the difference between orthography and spelling?
2. Write the rules that govern the spelling of the following derivatives: wealthiest, beginning, baking.
3. Define and illustrate the following: mute, semi-vowel, dental aspirate, diphthong, compound word.
4. Give two homonyms and two synonyms for *hue*.
5. Accent and mark diacritically: politic, legendary, bicycle, coadjutor, cantaloupe.

NOTE.—The above questions will count for 50 per cent, and the spelling of list of words for 50 per cent.

LIST OF WORDS.

All Grades.

1. Chili.
2. veracity.
3. interior.
4. shepherd.
5. essence.
6. Nicaragua.
7. ready.
8. Colorado.
9. distribute.
10. brigadier.
11. cylinder.
12. sieve.
13. gauge.
14. criticism.
15. belligerent.
16. separate.
17. victuals.
18. agate.
19. Cheyenne.
20. aborigines.
21. forfeit.
22. reservoir.
23. Ecuador.
24. analysis.
25. continuance.

PENMANSHIP.

All Grades.

In a paragraph of not more than twenty-five words, express your ideas regarding the slant of letters and pen holding. [Knowledge of subject to count 30% and penmanship 70%.]

PHYSICS.

Second Grade.

1. General excellence and neatness of paper to count for this number.
2. In what three different conditions may substances exist? Give examples.
3. Define momentum. State five familiar facts that illustrate the action of momentum.
4. What is meant by the arms of a lever? State rule for determining the efficiency of a lever.
5. Describe the process by which steel may be rendered hard and brittle. How may it be made soft, ductile, or malleable?
6. (*a*) What is meant by specific gravity? With what is the weight of solids and liquids generally compared?
   (*b*) Mention three liquids that are heavier than this standard substance.
   (*c*) Mention two solids that are lighter.
7. Describe the siphon. What forces the water upon into the short arm of the siphon?
8. Describe any experiment by which the pressure of air may be shown.
9. State three facts which prove that time is required for sound waves to move from one place to another.
10. Define reflection, absorption, and emission of heat. Why cannot good reflectors of heat be also good absorbers or radiators?

PHYSIOLOGY.

Second Grade.

1. General excellence and neatness of paper to count for this number.
2. Mention the different parts which enter into the formation of a joint. What purpose does each serve?
3. The heart is the motor power that forces the blood to all parts of the body; what causes the blood to return to the heart? Why are veins supplied with valves, while arteries are not?
4. What is the office of the muscular coat of the stomach? Have the esophagus and the intestines such a coat?
5. Where is the sciatic nerve and why is it an important one? What is sciatica?
6. Describe a voluntary muscle both by drawings and words. How do voluntary muscles differ in appearance from involuntary?
7. Of what is the blood composed? What element of the blood is designed to stop hemorrhage?
8. What is the effect of alcohol upon the water in the human body? Why does the drinker of alcohol fail to realize his danger?
9. What effect has a hot water bath upon the circulation? A cold water bath? Which is the more invigorating?
10. What are the three best arguments you can give a boy against the use of cigarets?

Third Grade, Class B.

1. General excellence and neatness of paper to count for this number.
2. Of what are bones composed? Are they compact or porous? Of what advantage is it that they should be so?
3. What is the periosteum and what purpose does it serve?

4. How are alcohol and vinegar produced? Is there any alcohol in vinegar?
5. What is the normal temperature of the body? About how many degrees may the temperature vary without causing death?
6. Describe the action of a muscle.
7. What is the object of cooking food? Mention several articles of food not usually cooked.
8. What diseases are often caused by the use of impure water? How may water be purified?
9. Describe the stomach by drawings. Name the different parts and openings.
10. Name five of the dangerous communicable diseases common in Michigan, and state how each may be prevented.

Third Grade, Class A.

1. General excellence and neatness of paper to count for this number.
2. Describe the hip joint and compare it with the shoulder joint. Which is the more easily dislocated and why?
3. How are the bones nourished? Explain how a broken bone mends, or grows together again.
4. How are alcohol and vinegar produced? Is there any alcohol in vinegar?
5. What is the normal temperature of the body? About how many degrees may the temperature vary without causing death?
6. What is the difference between a tendon and muscle in composition, size, and use?
7. Mention five sports that afford good exercise for pupils, and state in what way each helps physical development.
8. What are lacteals and lymphatics, and what is the office of each?
9. How do alcoholic drinks affect the brain and nerves of the drinker?
10. Describe the sympathetic nervous system. Explain how indigestion may cause headache.

READING.

All Grades.

I.

Alone I walked the ocean strand;
A pearly shell was in my hand;
I stooped and wrote upon the sand
My name—the year—the day.
As onward from the spot I passed,
One lingering look behind I cast—
A wave came rolling high and fast,
And washed my lines away.

And so, methought, 'twill shortly be
With every mark on earth for me;
A wave of dark oblivion's sea
Will sweep across the place
Where I have trod the sandy shore
Of time—and been, to be no more—
Of me, my fame, the name I bore,
To leave no track nor trace.

And yet, with him who counts the sands
And holds the waters in his hands,
I know a lasting record stands
Inscribed against my name,
Of all this mortal part has wrought,
Of all this thinking soul has thought,—
And from these fleeting moments caught,
For glory or for shame.

GEO. D. PRENTICE.

II.

There were storms in the air, the jib-stay had been carried away; but what cares such a monarch of the deep for a hurricane! All's well at twelve o'clock at night! Strike eight bells! All's well at one o'clock in the morning! Strike two bells! How the water tosses from the iron prow of the Huron as she seems moving resistlessly on! If a fishing smack came in her way, she would ride it down and not know she touched it.

But alas! through the darkness she is aiming for Nag's Head. What is the matter with the compasses? At one o'clock and forty minutes there is a harsh grating on the bottom of the ship, and the cry goes across the ship, "What's the matter?" Then the sea lifts up the ship to let her fall on the breakers—shock! shock! shock! The dreadful command of the captain rings across the deck and is repeated among the hammocks, "All hands save the ship!" Then comes the thud of the ax in answer to the order to cut away the mast. Overboard go the guns; they are of no use in this battle with the wind and wave.

Heavier and heavier the vessel falls, till the timbers begin to crack. The work of death goes on, every surge of the sea carrying more men from the forecastle, and reaching up its briny fingers to those hanging in the rigging. Numb and frozen, they hold on and lash themselves fast, while some, daring each other to the undertaking, plunge into the beating surf and struggle for the land. Oh cruel sea! pity them as, bruised and mangled and with broken bones, they make desperate effort for dear life. For thirty miles along the beach the dead of the Huron are strewn, and throughout the land there is weeping and lamentation and great woe.

T. DeWitt Talmage.

III.

Courtesy is that outward demeanor by which we show our regard for the feelings of others. Gentlehood is the manner of life and thought from which courtesy naturally springs. A broad distinction is to be drawn between gentlehood and its caricature, gentility. Gentility is a cheap and tawdry imitation; gentlehood is the real thing. The one is a veneer; the other is the same all through. As gentlehood is to gentility, so is courtesy to that fitful and labored politeness which is put on as if it were a dress-coat, only to be worn on special occasions. The faculty of sympathy is at the root of courtesy. The unsympathetic man is never truly courteous, because he is, by the very law of his nature, careless of the feelings of others.

"Manners are not idle, but the fruit
Of loyal nature and of noble mind."

—*Anon.*

SCHOOL LAW.

All Grades.

1. Mention several of the specific duties of the director of a primary school district.
2. What children are considered by the school law as "juvenile disorderly persons?"
3. How may a district library be established?
4. Mention all the legal holidays in this State.
5. What are the legal school ages in Michigan? Are persons older than the maximum legal school age prohibited from attending school in the district in which they reside?

THEORY AND ART.

All Grades.

1. Mention three important elements of governing power which a teacher should possess.
2. What suggestions are given in the State Manual and Course of Study for teaching reading to pupils of the second and third grades?

3. Name three proper incentives to study. Name two of doubtful propriety.
4. In what form are rules of conduct best presented to children?
5. What is meant by the practical value of a study? By its disciplinary value? Which should be preferred for pupils, a study having little disciplinary value but high practical value, or the reverse?

NOTE 1.—Many of the questions in this topic used at teachers' examinations during the year 1895-6, will be taken from "White's School Management," one of the books adopted by the State Teacher's Reading Circle.

NOTE 2.—Copies of the State Manual and Course of Study may be obtained on application to the Superintendent of Public Instruction.

UNITED STATES HISTORY.

Second Grade.

1. General excellence and neatness of paper should count for this number.
2. What is the special value of history and with what should it be correlated in school?
3. Which one of the thirteen colonies had a written constitution guaranteeing freedom of faith to all, and what Puritan leader taught that the people should have a voice in governing their own affairs?
4. What did Samuel de Champlain do that made the warriors of the five nations such deadly enemies of the French? Why is this an important fact in American history?
5. What president inaugurated the system of using public offices as a reward for political service, and what was the best public service of this same president?
6. In what way have the Banks of Newfoundland influenced the course of history?
7. How did the following political terms originate: loco-focos, nullifiers, know-nothings, carpet-baggers, mugwumps?
8. What was the "Grand Model," and why did it prove an unsuccessful experiment?
9. What is suggested by the old war cry, "fifty-four forty or fight?"
10. Make a definite statement concerning any five of the following:

Nikola Tesla.	Lord Salisbury.
Industrial Niagara.	The "Defender."
The Atlanta Exposition.	Prof. Huxley.
The New National Military Park.	The United States and Venezuela trouble.
The Catholic Temperance Convention.	Labor Troubles in Northern Michigan.

Third Grade, Class B.

1. General excellence of paper should count for this number.
2. Why were the revenue laws so much more strictly enforced by England after 1763, and what outrageous instrument of tyranny about this time created much ill feeling against the mother country?
3. What do these dates suggest: 1754, 1789, 1845, 1863, 1893? Mention five others you deem equally important.
4. What did the early Spanish explorers attempt to do and what did they really accomplish?
5. Name an able writer, an eloquent orator, and a famous statesman who were instrumental in securing the repeal of the stamp act?
6. What territory has the United States acquired by purchase? By conquest? By annexation?
7. Write a complete stanza of any one of the following: "Star Spangled Banner," "Red, White, and Blue," or "Battle Hymn of the Republic."
8. How was Henry Clay connected with the slavery question, and how did Eli Whitney become one of the factors in this problem?
9. Give a brief account of the battle of Chickamauga.

10. Make a definite statement concerning any five of the following:

Nikola Tesla.	Lord Salisbury.
Industrial Niagara.	The "Defender."
The Atlanta Exposition.	Prof. Huxley.
The New National Military Park.	The United States and Venezuela trouble.
The Catholic Temperance Convention.	Labor Troubles in Northern Michigan.

Third Grade, Class A.

1. General excellence of paper should count for this number.
2. What is the "historical imagination" which it is said the teacher should cultivate? Cite some historic incident in which it could be used to advantage.
3. What do these dates suggest: 1754, 1789, 1845, 1863, 1893? Mention five others you deem equally important.
4. What did the early Spanish explorers attempt to do and what did they really accomplish?
5. Name an able writer, an eloquent orator, and a famous statesman who were instrumental in securing the repeal of the stamp act?
6. Name any historic incident illustrative of devotion to duty, honor, personal valor, etc.
7. Describe as to a class of children, the voyage of the Puritans and their first winter in America. [20 credits.]
8. Tell a story of heroism.
9. Make a definite statement concerning any five of the following:

Nikola Tesla.	Lord Salisbury.
Industrial Niagara.	The "Defender."
The Atlanta Exposition.	Prof. Huxley.
The New National Military Park.	The United States and Venezuela trouble.
The Catholic Temperance Convention.	Labor Troubles in Northern Michigan.

DECISIONS

OF THE

SUPREME COURT AND ATTORNEY GENERAL

OF MICHIGAN

ON MATTERS OF

EDUCATIONAL INTEREST.

FILED DURING 1895.

I. CHANGE OF BOUNDARIES OF FRACTIONAL SCHOOL DISTRICT.

II. DISCHARGE OF TEACHER BY DISTRICT BOARD.

III. RIGHT OF WOMEN TO VOTE AT SCHOOL ELECTIONS IN CITIES OF THE FOURTH CLASS.

IV. COLLECTION OF INSTITUTE FEES.

DECISIONS OF SUPREME COURT.

I. GRAVES v. JOINT BOARD OF SCHOOL INSPECTORS OF BENTON AND GRANT TOWNSHIPS.

(Supreme Court of Michigan. Dec. 7, 1894.)

FRACTIONAL SCHOOL DISTRICT—CHANGE OF BOUNDARIES—REQUIREMENT OF NOTICE.

The requirement of 2 How. Ann. St. § 5040, that, when boards of school inspectors wish to change the boundaries of a fractional school district, notice, signed by the clerk of each township interested, shall be posted in each of such townships, is jurisdictional, and proof of the posting of such notice must be filed with the clerks before any action is taken.

Certiorari, on the petition of Adolphus Graves, to review the action of certain boards of school inspectors of the townships of Benton and Grant in attempting to alter the boundaries of a fractional school district. Judgment was rendered in favor of the petitioner.

Frank Shepherd, for petitioner.

MCGRATH, C. J. This is certiorari to review the action of certain boards of school inspectors of the townships of Benton and Grant in attempting to alter the boundaries of a fractional school district. The records of the meeting, returned here, do not contain any evidence that proof was made of the posting of the notice of the meeting; and the only notice appearing, if any was posted, was signed by the clerk of Benton township only. The statute requires that, in case of a proposed alteration of fractional district, the notice shall be signed by the clerk of each interested township, and that it shall be posted in each of such townships. 2 How. Ann. St. § 5040. The statutory requirement is jurisdictional, and proof of posting such notice should be filed with the clerk of the board before any action is taken. Coulter v. School Inspectors, 59 Mich. 391, 26 N. W. 649; School Dist. No. 3 v. School Dist. No. 1, 63 Mich. 51, 29 N. W. 489; Fractional School Dist. No. 3 v. School Inspectors of Martin, 63 Mich. 611, 30 N. W. 198; School Dist. v. Metcalf, 93 Mich. 497, 35 N. W., 627. It appears by an amended return that no further proceedings have been taken to carry into effect the action here complained of. The proceedings must be quashed and held for naught, with costs to petitioner. The other justices concurred.

II. DERRY v. BOARD OF EDUCATION OF CITY OF EAST SAGINAW.

(Supreme Court of Michigan. Dec. 7, 1894.)

DISCHARGE OF EMPLOYE—DAMAGES.

Where a contract of employment provides that it may be terminated by the employer on one week's notice, the employé is entitled to only one week's salary as damages on refusal of the former to continue his employment.

Error to circuit court, Saginaw county; Robert B. McKnight, Judge.

Action by Stephen F. Derry against the board of education of East Saginaw for breach of an employment contract. There was a judgment for plaintiff, and defendant brings error. Reversed.

Charles S. Smith, for appellant. T. E. Tarsney and W. W. Wicker, for appellee.

GRANT, J. Plaintiff sued to recover for services as school teacher. The defendant pleaded the general issue, with notice that the contract sued upon was canceled and terminated before the time when the said plaintiff's services were to begin. Plaintiff was teaching at the time of the execution of the contract, as principal of the ungraded school. At the regular meeting of the board held June 15th it refused to adopt the recommendation of the committee on schools to discontinue the ungraded school, and adopted a resolution appointing plaintiff principal at the same salary as the previous year. June 16th, the secretary of the board, on its behalf, executed a written contract with plaintiff, whereby he agreed "to serve as a teacher in the public schools of the city for the ensuing school year, commencing September 5th, for $700.00." The contract contained the following clause: "Said board reserving to itself the right to change said teacher from one school or grade to another, or to discharge said teacher at any time whenever it may desire to terminate this contract, upon one week's written notice to said teacher by its committee on teachers and text-books." June 29th a special meeting of said board was held to take action upon the resignation of the superintendent of schools, and to consider such other business as might properly come before the board. At this meeting the action of June 15th was reconsidered, and a resolution adopted discontinuing the ungraded school, and also instructing the committee on teachers and school books to give plaintiff the requisite notice that his services were no longer required. July 7th, the committee wrote plaintiff, notifying him that his contract would terminate July 16th. At the time this notice was mailed he was out of town, and did not receive it until in August or the 1st of September. He, however, was informed of the action of the board June 30th. At the opening of the schools in September he presented himself for work under the contract, and was refused employment. He secured other employment in May following. The court directed a verdict for three months' salary.

The defendant denies the authority of the secretary to make the contract. This objection comes too late, as the plea admitted its execution. Several objections are made to the validity of the action of the board in rescinding the contract. We deem it unnecessary to mention them. The board refused him employment at the opening of the school. This was equivalent to notice, and entitled him to recover for only one week's salary. Fisher v. Monroe (Com. Pl.) 21 N. Y. Supp. 995; Peverly v. Poole, 19 Abb. N. C. 271; Hartley v. Harman, 3 Perry & D. 567. Judgment reversed, and entered in this court for the plaintiff in accordance with this opinion. The defendant will recover costs.

HOOKER, J., did not sit. The other justices concurred.

III. RIGHT OF WOMEN TO VOTE AT SCHOOL ELECTIONS IN CITIES OF THE FOURTH CLASS.

(Attorney General of Michigan.)

The Hon. Washington Gardner Secretary of State, Lansing, Mich.:

MY DEAR SIR—Yours of a recent date received. You ask, "Can women now vote at regular annual elections of school trustees, held in this State, who live in cities incorporated under the provision of act No. 215 of the public acts of 1895, being "An act to provide for the incorporation of cities of the fourth class."

Owing to the importance of this question, and especially from the announcement that has been made public that, owing to somebody's mistake, women residing in these cities were, as the law now reads, unintentionally deprived of the privilege which they have long enjoyed, I have given very careful attention to this matter to determine what, in fact, the law is on the subject. As the result of this examination, I am clearly of the opinion that no such result has been reached, and that the women who are duly qualified, under the general school law, can continue to vote and hold office in exactly the same manner as they did before the adoption of the act in question.

The words which have been regarded as sufficient to disfranchise women are found in section 4, of chapter 32, on page 489 of said act, and they are as follows:

"Every person shall be entitled to vote at such election who is a qualified voter of the State, and qualified by the laws of the State to vote at any election for school officers."

These words standing alone and read without reference to the intent of the legislature, as gathered from the entire act, are, I confess, somewhat ambiguous, and might lead to the conclusion that women were, in fact, disfranchised. But it is a fundamental principle in the construction of statutes, that the intention embodied and embraced in the statute is the vital thing—the very essence of the law. And, while it is true that, where the words are clear, certain and unambiguous, so that the legislative intent is perfectly clear, there is no room for construction; it is always equally true that if from a view of the whole law or from other laws in *pari materia* the evident intention is different from the literal import of the terms employed to express it in a particular part of the law, that the intention must prevail. That, in fact, is the will of the legislature.

With this foundation principle in view, we are prepared to address ourselves to the consideration of the sentence above quoted, and inquire what do the words really mean?

As has been well said, in determining what a particular provision, clause, or word means, we must proceed as we would with any other composition—construe it with reference to the leading idea or purpose of the whole instrument. The whole and every part must be considered; and always the general intent should be kept in view in determining the scope and meaning of any part. This survey and comparison are necessary to ascertain the purpose of the act and to make all the parts harmonious. They are to be brought into accord, if practicable, and thus, if possible, give a sensible and intelligent effect to each in furtherance of the general design. The words and meaning in one part of an act often lead to and furnish the explanation of the sense of another. And if the comparison of one clause with the rest of the statute makes a certain proposition clear and undoubted, the act must be construed accordingly, so as to make it one consistent whole. And if, after all, as unfortunately it is often the case, this cannot be done, then, that construction that produces the greatest harmony and the least inconsistency is that which must prevail. The intention of the whole act controls the interpretation of any of its parts. And I have no hesitancy whatever in saying that the legislative intent, as gathered from the entire act, is perfectly clear, that is—that women were to be allowed to vote at school meetings in the future as they had in the past. In other words, that there was no intention on the part of the legislature to disfranchise women.

In the first place, there is not a word, either in the act itself or in its title, that indicates the legislature intended to repeal act No. 164 of the public acts of 1881, which conferred upon women of certain classes the right to vote at annual school elections. But, on the contrary, this act was under consideration during the session of the legislature last winter, and section 17 of chapter 2 of said act, which gives this power to women, was amended, in certain particulars, but in no way as it affects the right of women to vote; which has been judiciously determined to be constitutional (see Belles v. Burr, 76 Mich. 1), and which privilege they have enjoyed for more than thirteen years. In other words, the legislature, instead of repealing the law granting this privilege to women, reconsidered it and readopted it, and declared that that which had been should continue to be the law of this State. This being the case, it is absurd that the legislature should immediately thereafter turn about and deny to women who happen to live in certain named cities the privilege which they freely gave to all other women of the State. The anomaly of a woman twenty-one years of age who is a citizen of the State and owning property assessed for school taxes, or who is the mother of children included in the school census, being permitted to vote in one city, and another woman possessing the same qualifications being denied this privilege because she happened to live in a city of the fourth class, which includes all cities not exceeding 10,000 population according to the last preceding federal or State census, is one which cannot be tolerated, unless the intention of the legislature to create this anomaly was absolutely certain. But I am glad to say that it is perfectly clear that the legislature had no such intention.

Again, that it is perfectly clear that the legislature intended to give women the privilege of voting at these school elections is found in this, that a careful distinction is made in pointing out who shall be qualified electors at elections held in the city other than for school purposes. On page four of said act it is expressly stated that "only those shall be electors" therein "who have the qualifications prescribed in the constitution of this State." And throughout the entire act, whenever the

subject of elections is considered, the word "electors" is in this sense used. But, when we come to chapter 32 of the act, which is entirely taken up with the one subject, "education," we find that the wording is entirely different; i. e., that instead of men and men only being electors, in this chapter, the language is used with reference to the fact that both men and women are entitled to vote at school elections; and that there should be no doubt about this, the legislature used the words in question and now under consideration. They had said before that only men should vote, but when it comes to school elections they say "Every person shall be entitled to vote at such elections who are qualified by the laws of the State to vote at any election for school officers."

The preceding clause, "who is a qualified voter of the city" may have been used for this purpose; that whereas, under the general school law "a residence of three months next preceding any school meeting" was required, that this would not be required of voters living in the cities of the fourth class; but that it will be sufficient if he or she shall have resided in the ward or election district where he offers to vote for twenty days next preceding the general election." And, in my opinion, this was the purpose for which these words were used. But, be that as it may, applying the rule that that construction which produces the greatest harmony and the least inconsistency should prevail, I have no hesitancy in saying that women who possess the qualifications named in the general school law shall continue in the future as in the past, to enjoy the privilege which they have enjoyed for a long time; viz., to vote at all school meetings.

And from what I have said, it follows that being qualified electors of the school district, they are eligible to hold the office of trustee of said district, as the only condition precedent to the holding of such office is that such trustee shall be an elector.

Yours truly,

FRED A. MAYNARD.

IV. HAMMOND v. BOARD OF EDUCATION OF CITY OF MUSKEGON.

(Supreme Court of Michigan, June 30.)

COLLECTION OF INSTITUTE FEES.

Circuit Court of Muskegon County, Frederick J. Russell, Judge.

Action by Deputy Supt. Jason E. Hammond against board of education of city of Muskegon for refusal to collect institute fees. There was a judgment for defendant and plaintiff brings error. Reversed.

This is a case to test the constitutionality of Section 5187, Howell's Annotated Statutes, commonly known as the "teacher's institute law."

Section 5187 reads as follows:

"That all boards of officers authorized by law to examine applicants for certificates of qualification as teachers, shall collect, at the time of examination, from each male applicant for a certificate, an annual fee of one dollar, and from each female applicant for a certificate, an annual fee of fifty cents; and the director and secretary of any school board that shall employ any teacher who has not paid the fee hereinbefore provided, shall collect, at the time of making contract, from each male teacher so employed, an annual fee of one dollar, and from each female teacher so employed, an annual fee of fifty cents. All persons paying a fee as required by this section, shall be given a receipt for the same, and no person shall be required to pay said fee more than once in any school year."

Other sections of the law provide that the money derived from tnese fees shall be expended toward defraying the expenses of holding county teachers' institutes.

The school officers of the city of Muskegon have for several years refused to collect these fees.

The relator petitioned the circuit court for Muskegon county, asking that the respondents be compelled by mandamus to collect these fees. The circuit court refused to make the order, and the proceeding is brought here by certiorari.

It is urged by respondent that section 5187 is defective, incomplete, and ineffectual. We do not think so. The language is simple and easy to be understood.

If it is the duty of the board to collect, it would follow naturally that it is the duty of the teacher to pay the fee as a condition of receiving the examination or employment, as the case may be.

It ought not to be difficult for the board of education to say to an applicant for a license to teach, or to an applicant for a teacher's position, that the applicant must comply with the law before the examination proceeds or the contract is made.

It is also urged that the law violates the provisions of Section 1, article 14, of the constitution, because the fees are specific taxes and must be applied according to the provisions of the section just cited. It is urged that the fees are not uniform, and for that reason the statute is unconstitutional. We think none of these positions well taken.

The principles involved are so ably discussed by Justice Cooley, in Youngblood v. Sexton, 32 Mich. 412, that it is not necessary to continue the discussion here. See State v. French, 41 Pac. Rep. 1078.

The writ of mandamus should issue as prayed for by the relator, but without costs.

Long, J., did not sit.

J. B. MOORE,
C. B. GRANT,
FRANK A. HOOKER,
R. M. MONTGOMERY.

REPORTS

FROM

STATE AND INCORPORATED

EDUCATIONAL INSTITUTIONS.

I. STATE:
1. UNIVERSITY OF MICHIGAN.
2. STATE NORMAL SCHOOL.
3. AGRICULTURAL COLLEGE.
4. MINING SCHOOL.

II. INCORPORATED:
1. AKELEY INSTITUTE.
2. ALMA COLLEGE.
3. HOLLAND THEOLOGICAL SEMINARY.
4. HOPE COLLEGE.
5. KALAMAZOO COLLEGE.
6. MICHIGAN MILITARY ACADEMY.
7. RAISIN VALLEY SEMINARY.
8. ST. MARY'S ACADEMY.
9. SPRING ARBOR SEMINARY.

UNIVERSITY OF MICHIGAN.

REPORT OF PRESIDENT.

HON. HENRY R. PATTENGILL, *Superintendent of Public Instruction.*

SIR: I beg leave to present to you, in compliance with law, the following report of the University of Michigan for the academic year, 1894-5.

The attendance of students continues to gain. The number in 1894-5 was 2,874. That is an increase of 169 over the previous year. By departments the attendance was as follows:

Department of Literature, Science, and the Arts		1,527
Department of Medicine and Surgery		394
Department of Law		672
Department of Pharmacy		78
Homeopathic Medical College		19
College of Dental Surgery		185
		2,875
Deduct for names counted twice		47
		2,828
Summer School	91	
Deduct for names counted in other Departments	45	
		46
Total		2,874

It is interesting to note that the actual and the relative attendance is regularly and somewhat rapidly increasing. It was almost exactly 55 per cent of the whole in the year under consideration. The fame and usefulness of the institution drew students from every state except Nevada, and from sixteen foreign states and provinces. The number of women was 576. Of these 494 were in the Literary Department, 72 in the Medical Department, 3 in the Law Department, 2 in the Homeopathic College, and 5 in the Dental College.

The number who graduated in all departments was 714, a number not reached in any other University in the land. The number of graduate students was 87.

The Regents have taken an important step in forming a new Department of Engineering. The students who were aiming to become engineers, whether civil, mechanical, electrical, or mining, have always formed a part of the Literary Department. But as they now number about 300, it has been deemed best to set them apart under the control of their

own faculty. While this will conduce to better administration, it is hoped that it will call attention to the fact, too little known even in Michigan, that we have here a great engineering school.

The Department of Medicine and Surgery had a most prosperous year. With its four years course of vigorous study in the most approved methods, it occupies a leading position among the great medical schools of the country.

The Law School continues to have the largest attendance of any law school in the country. It was decided to extend the course of study from two to three years. This extension of the course has furnished the opportunity to improve the range and the methods of instruction.

The Homeopathic Medical College was seriously injured by discussions which sprang up in the profession over the policy to be pursued in the conduct of its affairs. Finally an entire change in the faculty was deemed necessary. It remains to be seen what the results of the discussion about the college will be.

The School of Pharmacy, which has always led the schools of the country in the scope and thoroughness of its work, has now established a four years' course for the training of experts in manufacturing pharmacy and of teachers for pharmacy schools.

The Dental College continues its useful work with about the same number of students, and enjoys the highest reputation through the land.

The Summer School in the summer of 1895 was attended by 191 students, more than double the number in the summer of 1894. This school is largely attended by teachers from various parts of the State, who come to prepare themselves for better service in the public schools. It is thus conferring a great benefit upon the State.

The number of patients in the hospitals was: University Hospital, 1,611; Homeopathic Hospital, 284; total, 1,895. Of these 1,076 were farmers, laborers, or persons in domestic service. Many of these were by the skill of surgeons and physicians of the University staff, restored to lives of usefulness and happiness, who would otherwise have died or have been a charge on their friends or on the counties. These hospitals are in fact a great public charity.

The Hygienic Laboratory is carrying on its useful work. Since its establishment it has analyzed more than 300 samples of drinking water, which it was suspected was so impure as to cause typhoid fever and other diseases. The value of its services to the towns and cities of the State in this way, and in the examination of adulterated foods, can hardly be overestimated.

The number of volumes in all the libraries on Sept. 30, 1895, was 98,707; of unbound pamphlets, 17,241; of maps, 1,151.

During last summer the large collection of pictures and statuary, which had been bequeathed to the University by the Late Henry C. Lewis of Coldwater, came into our possession. It consists of about 600 pictures and about 100 pieces of statuary. Many of the pictures are of very great value, and we greatly need a suitable gallery for them and for our other works of art.

The gymnasium was completed and occupied, and has proved of the greatest service. A vigorous effort is now being made to secure funds for the erection of a gymnasium for the women. Regent Barbour has

given for the purpose a lot of land in Detroit valued at $25,000, and ex-Regent Hebard with some friends has given $10,000.

Some other gifts have been bestowed; Mrs. Clara Harrison Stranahan of Brooklyn, N. Y., has given $25,000 as a scholarship fund for the benefit of the descendants of her father, Seth Harrison. Messrs. Parke, Davis & Co. of Detroit, are sustaining for a year a Fellowship in Chemistry with $500, and Frederick Stearns of Detroit, has endowed a Fellowship for research in the School of Pharmacy with $300 a year for two years.

The constant and rapid growth of the University makes so heavy demands on our treasury that it is only with the greatest difficulty we are able to accomplish our work with the funds at our disposal. With more students to instruct than any other University but Harvard, our expenditures are less by a large sum than at least three other universities, whose students are less by hundreds than ours.

During the year two men died, who long served the University most usefully as Regents.

On Nov. 18, 1894, Thomas Dwight Gilbert died at Grand Rapids. He was a member of the Board from 1864 to 1876. During a large part of the period he was chairman of the Finance Committee. It was a period when the institution was growing rapidly and was begininng to receive substantial aid from the State treasury. It is not too much to say that the public confidence in Mr. Gilbert's economy and financial skill was of great service in leading the legislature to appropriate money for the multiplying wants of the University. He was a man of the highest civic virtue, and the city of his residence manifested at his death its sense of its great obligation to him.

On Dec. 28, 1894, Edward Carey Walker died at his home in Detroit. He was for twelve years a colleague of Mr. Gilbert on the Board, but served six years longer. A graduate of Yale College, he was well fitted to consider the problems of internal administration and the scholarly development of the University. He was most unremitting in his attention to the duties of his office, and his services were of the highest value.

Yours respectfully,

JAMES B. ANGELL.

BOARD OF REGENTS.

	Term Expires.
James B. Angell, LL.D., President.	
Hon. Roger W. Butterfield, Grand Rapids	Dec. 31, 1895.
Hon. Charles Hebard, Pequaming	" 1895.
Hon. Levi L. Barbour, Detroit	" 1897.
Hon. William J. Cocker, Adrian	" 1897.
Hon. Peter N. Cook, Corunna	" 1899.
*Hon. Henry S. Dean, Ann Arbor	" 1899.
Hon. Herman Kiefer, Detroit	" 1901.
Hon. Frank W. Fletcher, Alpena	" 1901.

James H. Wade, Secretary and Steward.

Harrison Soule, Treasurer.

Hon. Henry R. Pattengill, Superintendent of Public Instruction. (Office at Lansing.)

*Appointed in place of Hon. Henry Howard, deceased.

MEMBERS OF THE FACULTIES AND OTHER OFFICERS.*

PERMANENT APPOINTMENTS AND APPOINTMENTS FOR TERMS LONGER THAN ONE YEAR.

James B. Angell, LL.D., President, South University avenue.

Albert B. Prescott, Ph. D., M. D., Director of the Chemical Laboratory, Professor of Organic Chemistry, and Dean of the School of Pharmacy, 50 South Ingalls street.

Rev. Martin L. D'Ooge, LL.D., Professor of the Greek Language and Literature, and Dean of the Department of Literature, Science, and the Arts, 77 Washtenaw avenue.

Charles E. Greene, A. M., C. E., Professor of Civil Engineering, 37 East William street.

Jonathan Taft, M. D., D. D. S., Professor of the Principles and Practice of Oral Pathology and Surgery, and Dean of the College of Dental Surgery, 23 North University avenue.

William H. Pettee, A. M., Professor of Mineralogy, Economic Geology, and Mining Engineering, 52 Thompson street.

John A. Watling, D. D. S., Professor of Operative and Clinical Dentistry, 121 North Huron street, Ypsilanti.

Edward L. Walter, Ph. D., Professor of Romance Languages and Literatures, 93 South State street.

Isaac N. Demmon, A. M., Professor of English and Rhetoric, 76 Washtenaw avenue.

William H. Dorrance, D. D. S., Professor of Prosthetic Dentistry and Dental Metallurgy, 42 South Ingalls street.

Albert H. Pattengill, A. M., Professor of Greek, 9 Monroe street.

Mortimer E. Cooley, M. E., Professor of Mechanical Engineering, 32 Packard street.

William J. Herdman, Ph. B., M. D., Professor of Nervous Diseases and Electrotherapeutics, 48 East Huron street.

Wooster W. Beman, A. M., Professor of Mathematics, 61 East Kingsley street.

Victor C. Vaughan, Ph. D., M. D., Professor of Hygiene and Physiological Chemistry, Director of the Hygienic Laboratory, and Dean of the Department of Medicine and Surgery, 15 South State street.

Henry L. Obetz, M. D., Professor of Surgery and Clinical Surgery, and Dean of the Homeopathic Medical College, 20 West High street, Detroit.

†Thomas M. Cooley, LL.D., Professor of American History and Constitutional Law, 76 South State street.

Charles S. Denison, M. S., C. E., Professor of Descriptive Geometry, Stereotomy, and Drawing, 23 South Division street.

Daniel A. MacLachlan, M. D., Professor of Ophthalmology, Otology, and Pædology in the Homeopathic Medical College, 35 East Madison street.

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* The names of Professors (including Librarian), Junior Professors, Assistant Professors (including Superintendent of Shops and Director of the Gymnasium), and other officers, are placed in their appropriate divisions, according to term of appointment and length of continuous service with present rank.

† Prof. Cooley has leave of absence, but delivers a brief course of lectures on the law of interstate commerce to advanced students in the Department of Law.

Henry S. Carhart, LL.D., Professor of Physics, and Director of the Physical Laboratory, 7 Monroe street.

Levi T. Griffin, A. M., Fletcher Professor of Law, 148 Henry street; Detroit.

Raymond C. Davis, A. M., Librarian, 15 Church street.

*Volney M. Spalding, A. B., Professor of Botany.

Henry C. Adams, Ph. D., Professor of Political Economy and Finance, 125 Hill street.

Calvin Thomas, A. M., Professor of Germanic Languages and Literatures, 76 Hill street.

Heneage Gibbes, M. D., Professor of Pathology, 16 Forest avenue.

Burke A. Hinsdale, LL.D., Professor of the Science and the Art of Teaching, 74 Washtenaw avenue.

Richard Hudson, A. M., Professor of History, 40 South Ingalls street.

Bradley M. Thompson, M. S., LL.B., Jay Professor of Law, 25 East University avenue.

Albert A. Stanley, A. M., Professor of Music, 19 South Ingalls street.

Francis W. Kelsey, Ph. D., Professor of the Latin Language and Literature, 12 Tappan street.

Jerome C. Knowlton, A. B., Marshall Professor of Law, and Dean of the Department of Law, 127 Hill street.

Charles S. Mack, A. B., M. D., Professor of Materia Medica and Therapeutics in the Homeopathic Medical College, and Secretary of the Homeopathic Faculty, 17 South State street.

Charles B. Nancrede, A. M., M. D., Professor of Surgery and Clinical Surgery in the Department of Medicine and Surgery, 4 Cornwell place.

Flemming Carrow, M. D., Professor of Ophthalmic and Aural Surgery and Clinical Ophthalmology in the Department of Medicine and Surgery, 51 East Huron street.

Otis C. Johnson, Ph. C., A. M., Professor of Applied Chemistry, 52 South Thayer street.

Paul C. Freer, Ph. D., M. D., Professor of General Chemistry, and Director of the Laboratory of General Chemistry, 42 Forest avenue.

James N. Martin, Ph. M., M. D., Professor of Obstetrics and Diseases of Women in the Department of Medicine and Surgery, 16 North State street.

Nelville S. Hoff, D. D. S., Professor of Dental Materia Medica and Dental Mechanism, 79 South State street.

George Dock, M. D., Professor of the Theory and Practice of Medicine and Clinical Medicine in the Department of Medicine and Surgery, 14 Cornwell place.

John W. Champlin, LL.D., Professor of Law, Grand Rapids.

Andrew C. McLaughlin, A. B., LL.B., Professor of American History, 25 Church street.

Joseph B. Davis, C. E., Professor of Geodesy and Surveying, 51 South Ingalls street.

Asaph Hall, Jr., Ph. D., Professor of Astronomy, and Director of the Observatory, Observatory.

Israel C. Russell, M. S., C. E., Professor of Geology, Corner of Hill and Oxford streets.

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* Absent on leave.

Warren P. Lombard, A. B.; M. D., Professor of Physiology and Histology, 86 South State street.

Floyd R. Mechem, A. M., Tappan Professor of Law, 3 Wilmot street.

*Jacob E. Reighard, Ph. B., Professor of Animal Morphology.

Thomas C. Trueblood, A. M., Professor of Elocution and Oratory, 64 East University Avenue.

James A. Craig, Ph. D., Professor of Semitic Languages and Literatures and Hellenistic Greek, 44 East Madison street.

Alexis C. Angell, A. B., LL.B., Professor of Law, 19 Watson street, Detroit.

Otto Kirchner, A. M., Professor of Law, 37 East Warren avenue, Detroit.

Arthur R. Cushny, A. M., M. D., Professor of Materia Medica and Therapeutics in the Department of Medicine and Surgery, 44 East Madison street.

Maurice P. Hunt, M. D., Professor of Gynæcology and Obstetrics in the Homeopathic Medical College, 26 East Jefferson street.

Eugene R. Eggleston, M. D., Professor of the Theory and Practice of Medicine in the Homeopathic Medical College, 29 East Jefferson street.

John C. Rolfe, Ph. D., Professor of Latin, 47 South Division street.

J. Playfair McMurrich, Ph. D., Professor of Anatomy, 86 South State street.

†Harry B. Hutchins, Ph. B., Professor of Law, and Dean Elect of the Department of Law.

Frederick G. Novy, Sc. D., M. D., Junior Professor of Hygiene and Pyhsiological Chemistry, 25½ Lawrence street.

George Hempl, Ph. D., Junior Professor of English, 95 East University avenue.

Edward D. Campbell, B. S., Junior Professor of Metallurgy, and Metallurgical Chemistry, 108 Hill street.

Fred M. Taylor, Ph. D., Junior Professor of Political Economy and Finance, 17 Church street.

Paul R. dePont, A. B., B. S., Assistant Professor of French, and Registrar of the Department of Literature, Science, and the Arts, 23 East Jefferson street.

Clarence G. Taylor, B. S., Superintendent of Shops in Engineering Laboratory, 18 South University Avenue.

Joseph H. Drake, A. B., Assistant Professor of Latin, 12½ North Thayer street.

Frank N. Cole, Ph. D., Assistant Professor of Mathematics, 61 Washtenaw avenue.

Fred N. Scott, Ph. D., Assistant Professor of Rhetoric, 1 College street.

Alexander Ziwet, C. E., Assistant Professor of Mathematics, 44 East Madison street.

George W. Patterson, Jr., A. M., S. B., Assistant Professor of Physics, 14 South University avenue.

George A. Hench, Ph. D., Assistant Professor of German, 21 Monroe street.

Frank C. Wagner, A. M., B. S., Assistant Professor of Mechanical Engineering, 43½ South Twelfth street.

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* Absent on leave.

† Professor Hutchins will enter upon his duties at the beginning of the year 1895-6.

G. Carl Huber, M. D., Assistant Professor of Histology, 24 East Ann street.

Alviso B. Stevens, Ph. C., Assistant Professor of Pharmacy, 13 Oakland avenue.

John O. Reed, Ph. M., Assistant Professor of Physics, 34 East Kingsley street.

William A. Campbell, B. S., M. D., Assistant Professor of Anatomy, and Secretary of the Faculty of the Department of Medicine and Surgery, 21 South State street.

William F. Breakey, M. D., Lecturer on Dermatology, 54 East Huron street.

Joseph L. Markley, Ph. D., Instructor in Mathematics, 50 Thompson street.

Moritz Levi, A. B., Instructor in French, 48 South Twelfth street.

Elmer A. Lyman, A. B., Instructor in Mathematics, 9 Lawrence street.

George O. Higley, M. S., Instructor in General Chemistry, 14 Olivia place.

David M. Lichty, M. S., Instructor in General Chemistry, 47 Packard street.

Max Winkler, Ph. D., Instructor in German, 14 South State street.

Joseph H. Vance, LL.B., Assistant Librarian in charge of the Law Library, Ann Arbor town.

Joseph Clark, Superintendent of Hospitals, 8 Cornwell place.

Hamilton Reeve, Superintendent of Buildings and Grounds, 44 East University avenue.

NON-RESIDENT LECTURERS ON SPECIAL TOPICS FOR 1894-95.

Marshall D. Ewell, LL.D., Lecturer on Medical Jurisprudence, 59 Clark street, Chicago, Ill.

James L. High, LL.D., Lecturer on Injunctions and Receivers, Chicago, Illinois.

John B. Clayberg, LL.B., Lecturer on Mining Law, Helena, Montana.

Melville M. Bigelow, Ph. D., Lecturer on Insurance, Cambridge, Mass.

George H. Lothrop, Ph. B., Lecturer on Patent Law, 143 Fort street west, Detroit.

Henry H. Swan, A. M., Lecturer on Admiralty Law, 664 Woodward avenue, Detroit.

Oscar R. Long, M. D., Lecturer on Mental Diseases in the Homeopathic Medical College, Ionia.

OTHER APPOINTMENTS FOR 1894-95.

Thomas A. Bogle, LL.B., Professor of Law in charge of the Practice Court, 128 Hill street.

James B. Fitzgerald, M. D., Director of the Gymnasium, 6 North Division street.

Dean C. Worcester, A. B., Assistant Professor of Animal Morphology, 9 Elm street.

Frederick C. Newcombe, B. S., Ph. D., Acting Assistant Professor of Botany, 51 East Liberty street.

Alfred H. Lloyd, Ph. D., Acting Assistant Professor of Philosophy, 41 South Twelfth street.

Victor C. Vaughan, Ph. D., M. D., Lecturer on Toxicology in its Legal Relations in the Department of Law, 15 South State street.

Henry C. Adams, Ph. D., Lecturer on the Railroad Problem in the Department of Law, 125 Hill street.

Andrew C. McLaughlin, A. B., LL.B., Lecturer on Constitutional Law and Constitutional History in the Department of Law, 25 Church street.

Richard Hudson, A. M., Lecturer on Comparative Constitutional Law in the Department of Law, 40 South Ingalls street.

Jonathan A. C. Hildner, A. M., Instructor in German, 101 South Main street.

Simon M. Yutzy, M. D., Instructor in Osteology and Assistant Demonstrator of Anatomy, 54 East Huron street.

Elias F. Johnson, B. S., LL.M., Instructor in Law, 31 North University avenue.

Benjamin P. Bourland, A. M., Instructor in French, 27 South Division street.

John R. Effinger, Jr., Ph. M., Instructor in French, 37 Forest avenue.

Martin L. Belser, M. D., Instructor in Pathology and Demonstrator of Autopsies, 72 Forest avenue.

Julius O. Schlotterbeck, Ph. C., B. S., Instructor in Pharmacognosy and Botany, 31 Lawrence street.

Lorenzo N. Johnson, A. M., Instructor in Botany, 24 Forest avenue.

Herbert F. DeCou, A. M., Instructor in Greek and Sanskrit, 16 Lawrence street.

Ernst H. Mensel, A. M., Instructor in German, 28 Monroe street.

Lawrence A. McLouth, A. B., Instructor in German, 63 East Ann street.

Earle W. Dow, A. B., Instructor in History, 82 Hill street.

George E. Dawson, A. B., Instructor in English, 47 East Ann street.

Moses Gomberg, Sc. D., Instructor in Organic Chemistry, 69 South University avenue.

Clarence G. Wrentmore, B. S., Instructor in Descriptive Geometry and Drawing, 65 South Fourth avenue.

Karl E. Guthe, Ph. D., Instructor in Physics, 36 East Kingsley street.

Tobias Diekhoff, A. B., Instructor in German, 13 South State street.

George A. Miller, Ph. D., Instructor in Mathematics, 61 Washtenaw avenue.

W. Franklin Edwards, B. S., Instructor in Organic Chemistry, and Accountant in the Chemical Laboratory, 48 East University avenue.

Sidney D. Townley, M. S., Instructor in Astronomy, Observatory.

Louis P. Hall, D. D. S., Instructor in Dental Anatomy and Operative Dentistry, 132 Hill street.

Henry A. Sanders, A. M., Instructor in Latin, 21 Forest avenue.

Clarence L. Meader, A. B., Instructor in Latin, and Lecturer on Roman Law in the Department of Law, 9 East University avenue.

Charles A. Kofoid, Ph. D., Instructor in Vertebrate Morphology, 66 East University avenue.

Wallace S. Elden, A. M., Instructor in French, 35 Church street.

Arthur G. Hall, B. S., Instructor in Mathematics, 63½ South Division street.

John W. Dwyer, LL.M., Instructor in Law, 50 East Kingsley street.

Thomas W. Hughes, LL. M., Instructor in Law, 25 South State street.

Frank W. Nagler, B. S., Instructor in Electrotherapeutics, 38 South Thayer street.

Walter Denton Smith, LL.B., Instructor in Law, 36 East University avenue.

William D. Johnston, A. M., Instructor in History, 28 South Fifth avenue.

George Rebec, Ph. B., Instructor in Philosophy, 95 Washtenaw avenue.

Frank R. Lillie, Ph. D., Instructor in Zoology, 9 Elm street.

Daniel B. Luten, B. S., Instructor in Engineering, 21 Monroe street.

Rev. John Bigham, Ph. D., Instructor in Philosophy, 45 South Twelfth street.

Keene Fitzpatrick, Instructor in the Gymnasium, 44 East Liberty street.

James G. Lynds, M. D., Demonstrator of Obstetrics and Gynæcology in the Department of Medicine and Surgery, 21 South State street.

Alice L. Hunt, Assistant in Drawing, 16 South Thayer street.

Fred P. Jordan, A. B., Assistant in the General Library in charge of Catalogue, 9 Olivia place.

Cyrenus G. Darling, M. D., Demonstrator of Surgery in the Department of Medicine and Surgery, and Clinical Lecturer on Oral Pathology and Surgery in the College of Dental Surgery, 38 East University avenue.

Ernest A. Clark, M. D., Assistant to the Professor of Surgery in the Homeopathic Medical College, 28 South Main street.

Eugene H. Robertson, Ph. M., Assistant to the Professor of Pathology in the Department of Medicine and Surgery, 11 North State street.

Byron A. Finney, A. B., Assistant in the General Library in charge of Circulation, 74 East Huron street.

Charles T. McClintock, Ph. D., M. D., Assistant in Hygiene, 78 East Washington street.

Aldred S. Warthin, Ph. D., M. D., Demonstrator of Clinical Medicine in the Department of Medicine and Surgery, 14 South State street.

Anderson H. Hopkins, Ph. B., Assistant in the General Library, 70 Hill street.

Charles H. Cooley, Ph. D., Assistant in Political Economy, 76 South State street.

Frank H. Dixon, Ph. B., Assistant in Political Economy, 82 Hill street.

James P. Briggs, Ph. C., Pharmacist in the University Hospital, 36 Catherine street.

Allison W. Haidle, D. D. S., Demonstrator of Dental Mechanism, 114 South State street.

Jeanne C. Solis, M. D., Assistant to the Professor of Nervous Diseases in the Department of Medicine and Surgery, 25 North State street.

Arthur MacGugan, M. D., Demonstrator of Nervous Diseases in the Department of Medicine and Surgery, 79 West Huron street.

Perry F. Trowbridge, Ph. B., Assistant in Qualitative Analysis, 10 Observatory street.

John B. Johnston, Ph. B., Assistant in Invertebrate Morphology, 31 North University avenue.

Louis A. Strauss, B. L., Ph. M., Assistant in English, 2 Thompson street.

Warren H. Lewis, B. S., Assistant in Vertebrate Morphology, 19 Forest avenue.

William G. Rice, M. D., Demonstrator of Ophthalmic and Aural Surgery and Clinical Ophthalmology and Otology in the Department of Medicine and Surgery, 78 East Washington street.

Julian McClymonds, M. D., Assistant to the Professor of Surgery and Clinical Surgery in the Department of Medicine and Surgery, 78 East Washington street.

Theodore L. Chadbourne, B. S., M. D., Assistant to the Professor of the Theory and Practice of Medicine and Clinical Medicine in the Department of Medicine and Surgery, 78 East Washington street.

John W. Foley, M. D., Assistant to the Professor of Obstetrics and Diseases of Women in the Department of Medicine and Surgery, 95 East Huron street.

Elijah M. Houghton, Ph. C., M. D., Assistant to the Professor of Materia Medica and Therapeutics in the Department of Medicine and Surgery, 34 South State street.

Alfred B. Olsen, M. D., Assistant in Histology, 3 Thompson street.

Edwin A. Murbach, A. B., M. D., Hospital Surgeon in the University Hospital, University Hospital.

Frank S. Bourns, A. B., M. D., Assistant Demonstrator of Anatomy, 6 South Observatory street.

Carlton D. Morris, M. D., Assistant in Physiological Chemistry, 49 South University avenue.

James Seymour, Ph. C., Assistant in Qualitative Analysis, 28 East Huron street.

John H. Schaffner, A. M., Assistant in the Botanical Laboratory, 89 East Huron street.

Edwin H. Edwards, B. S., Assistant in the Botanical Laboratory, 83 East Washington street.

Willard C. Gore, Ph. B., Assistant in English, 4 Thompson street.

Lester E. Peck, M. D., House Surgeon in the Homeopathic Hospital, Homeopathic Hospital.

Burt D. Walker, M. D., House Surgeon in the Homeopathic Hospital, and Assistant to the Professor of Theory and Practice of Medicine in the Homeopathic Medical College, Homeopathic Hospital.

Jennie Hughes, M. D., Assistant to the Professor of Materia Medica and Therapeutics, in the Homeopathic Medical College, 24 South State street.

Emerson R. Miller, Phar. M., B. S., Assistant in Qualitative Analysis, 9 South Fifth avenue.

Fred W. Palmer, M. D., Hospital Physician in the University Hospital, University Hospital.

Charles T. Whinery, D. D. S., Assistant in Operative and Clinical Dentistry, 47 East Liberty street.

John P. Davis, Ph. D., Assistant in Political Economy, 21 South Fourteenth street.

Edward H. Troy, M. D., Assistant to the Professor of Pathology in the Department of Medicine and Surgery, 64 East Kingsley street.

Ervin D. Brooks, B. S., M. D., Assistant to the Professor of Ophthalmology, Otology, and Pædology, in the Homeopathic Medical College, 9 North State street.

SPECIAL ASSISTANTS IN THE ENGINEERING LABORATORY.

Robert Winslow, Foundry, 32 Wall street.
Horace T. Purfield, Wood Room, 36 South Twelfth street.
John M. Smoots, Iron Room, 80 Forest avenue.
Thomas Orr, Forge Shop, 981 Jefferson avenue, Detroit.

TREASURER'S REPORT.

RECEIPTS.

Balance in treasury, July 1, 1894	$44,731 34	
From State Treasurer, account special appropriations.	6,000 00	
" " " " current expenses	225,722 36	
" Earnings, miscellaneous sources	163,693 17	$440,146 87

DISBURSEMENTS.

From special funds account	$68,692 91	
" general fund account	365,539 01	
Balance in treasury June 30, 1895	5,914 95	$440,146 87

GENERAL FUND.

RECEIPTS TO THE GENERAL FUND.

From State Treasurer, account 1-6 mill tax	$188,333 31	
" " " " University interest	37,389 05	$225,722 36
" interest on deposits	2,687 08	
" dental supplies	5,459 37	
" miscellaneous sources	898 26	
" general catalogs, sold	15 00	
" general library—duplicate books sold	30 18	
" University Record, subscriptions paid	12 85	
" University hospital earnings (balance for year		
" 8193-94,	1,476 06	
" University hospital earnings, for 1894-95	5,000 00	
" Physical laboratory earnings	2 50	
" Anatomical material	566 56	$16,147 86

To students' fees and deposits, as follows:

Medical department	$15,620 00
Literary "	51,790 00
Law "	31,305 00
Dental "	7,385 00
Homeopathic department	890 00
Pharmacy department	3,840 00
Chemical laboratory	8,720 00
Hygienic "	2,754 78
Physiological laboratory	93 00

Botanical laboratory	$797 00		
Pathological laboratory	1,105 00		
Zoological "	533 00		
Electrical engineering laboratory	541 00		
General chemistry "	923 53		
Electrotherapeutical "	840 00		
Pharmacological "	40 00		
Practical anatomy	2,610 00		
Histological laboratory	840 00		
Mechanical "	1,620 00		
Medical demonstration	3,360 00		
Gymnasium lockers	2,162 00		
Diplomas	7,189 00		
Key deposits	571 00		
Summer school	2,016 00	$147,545 31	$147,545 31
			$389,415 53
Students' fees, total	$147,545 31		
Students' fees refunded	5,656 97		
Net	$141,888 34		

DISBURSEMENTS FROM THE GENERAL FUND.

To balance overdrawn July 1,1894			$5,477 59
" transfer to special building fund			6,303 53
" general pay roll	$157,517 85	$157,517 85	157,517 85
" medical department, pay roll	38,341 00	38,341 00	
" " " books		2,498 10	
" " " miscellaneous		278 86	41,117 96
" law department, pay roll	21,612 50	21,612 50	
" " " books		1,749 11	
" " " miscellaneous		417 87	23,779 48
" pharmacy and chemistry, pay roll	18,696 00	18,696 00	
" pharmacy and chemistry, miscellaneous		6,977 22	25,673 22
" University hospital, pay roll	4,569 27	4,569 27	
" " " miscellaneous		3,504 94	8,074 21
" homeopathic hospital, pay roll	1,337 50	1,337 50	
" " " miscellaneous		4,149 32	5,486 82
" Dental college, pay roll	11,350 00	11,350 00	
" " " miscellaneous		4,064 97	15,414 97
Amount of pay rolls	$253,424 12		
" contingent account			8,034 03
" repairs			7,440 17
" fuel and lights			21,495 86
" general library, books			9,792 78
" " " miscellaneous			1,083 33
" postage			1,476 50
" printing and advertising			3,258 31
" museum			64 25
" botanical laboratory			644 25
" histological laboratory			414 92
" hygienic laboratory			2,785 51
" mechanical laboratory			1,027 47
" pathological laboratory			624 06
" physiological laboratory			351 84
" general chemistry laboratory			1,434 75
" electrical engineering laboratory			864 82
" practical anatomy laboratory			1,892 68
" materia medica laboratory			419 18
" zoological laboratory			197 79
" theory and practice laboratory			50 22

To psychological laboratory		$302 68
" geology		427 19
" ophthalmology		77 05
" morphology		355 68
" civil engineering		1,015 65
" observatory		1,282 34
" Greek		30 60
" demonstration courses		18 50
" electrotherapeutics		238 88
" nervous diseases		65 92
" dermatology		50 00
" history		140 96
" diseases of women and children		234 25
" surgical demonstrations		416 84
" homeopathic college		150 50
" recitation building		2,024 15
" gymnasium		546 54
" steam heating		1,668 95
" Latin department		152 58
" museum roof		3,762 92
" Columbian organ account		163 68
" horse and cart expenses		89 68
" summer school expenses		1,818 34
" insurance		272 00
" oriental languages		104 11
" University Record		277 49
" water supply		1,193 80
" carpenter shop supplies		709 94
" school inspection		403 55
" mineralogy		107 62
" students' fees refunded		5,656 97
" commencement expenses		733 00
" Lewis art collection		629 42
" balance—cash in hand	$5,914 95	
" cash loaned to special fund account	6,180 45	12,095 40
		$389,415 53

SPECIAL FUND ACCOUNTS.

HOMEOPATHIC MEDICAL COLLEGE.

Receipts.

From State Treasurer	$6,000 00	
Balance overdrawn June 30, 1895	6,273 51	$12,273 51

Disbursements.

Balances overdrawn July 1, 1894	$1,467 96	
Paid salaries to professors and employés	10,800 00	
Paid vouchers for expenses	5 55	$12,273 51

PHYSICAL LABORATORY.

Receipts.

Balance in treasury July 1, 1894	$435 72	$435 72

Disbursements.

Paid vouchers for expenses	$428 66	
Balance in treasury June 30, 1895	7 06	$435 72

CIVIL ENGINEERING.

Receipts.

Balance in treasury July 1, 1894	$70 10	$70 10

Disbursements.

Paid vouchers for expenses	$61 00	
Balance in treasury June 30, 1895	9 10	$70 10

EQUIPMENT OF ENGINEERING LABORATORY.

Receipts.

Balance in treasury July 1, 1894	$150 25	$150 25

Disbursements.

Paid vouchers for expenses	$73 35	
Balance in treasury June 30, 1895	76 90	$150 25

BUILDING FUND.

Receipts.

Balance in treasury July 1, 1894	$51,020 82	
Transfer from general fund	6,303 53	$57,324 35

Disbursements.

Paid vouchers for expenses, gymnasium account	$11,084 08	
Paid vouchers for expenses, steam heating account	45,169 12	
Paid vouchers for expenses, museum roof account	1,000 00	
Paid vouchers for expenses, organ account	71 15	$57,324 35

SPECIAL FUNDS.

Balances June 30, 1895.

Equipment of engineering laboratory	$76 90		
Physical laboratory	7 06		
Civil engineering	9 10		
Borrowed from general fund	6,180 45	$6,273 51	
Homeopathic college, overdrawn			$6,273 51

AFFAIRS OF THE HOSPITALS.

The superintendent of the hospitals reports to the auditing board the following as all the business done by him during the year. This embraces the running expenses only and does not include the maintenance or permanent expenses which are met from the general fund of the University.

UNIVERSITY HOSPITAL, JULY TO SEPTEMBER, 1894.

This hospital was again opened during the vacation months, July, August, and September, 1894, with the following results:

Receipts.

Receipts from patients	$3,474 39	
Deficiency	67 28	$3,541 67

Disbursements.

Refunded to patients	$884 08	
Paid for salaries and maintenance	2,657 59	$3,541 67

UNIVERSITY HOSPITAL, OCTOBER, 1894, TO JUNE, 1895.

Receipts.

For the college year, October to June, inclusive, receipts from patients	$20,664 88	$20,664 88

Disbursements.

Amount refunded to patients by Joseph Clark, superintendent	$5,957 40	
Amount of expenses paid by Joseph Clark, superintendent	9,707 48	
Amount of cash to treasurer by Joseph Clark, superintendent	5,000 00	$20,664 88

HOMEOPATHIC HOSPITAL, JULY TO SEPTEMBER, 1894.

This hospital was opened during the summer months for the first time and with the following results:

Receipts.

Received from patients by Joseph Clark, superintendent	$658 90	
Amount of deficiency paid from the University general fund	579 80	$1,238 70

Disbursements.

Amount refunded to patients by Joseph Clark, superintendent	$198 89	
Amount of expenses paid by Joseph Clark, superindent	1,039 81	$1,238 70

HOMEOPATHIC HOSPITAL, OCTOBER, 1894, TO JUNE, 1895.

Receipts.

From collections and earnings for the college year October to June, inclusive, receipts from patients by Joseph Clark, superintendent	$3,351 97	
Deficiency	940 20	$4,292 17

Disbursements.

Amount refunded to patients by Joseph Clark, superintendent	$1,050 09	
Amount of expenses paid by Joseph Clark, superintendent	3,242 08	$4,292 17

GIFTS AND TRUST FUNDS.

Under this head are included gifts and other funds which the regents have received from time to time from benefactors for general purposes or for stated special purposes, and to which list during the year have been added:

Bequest of Miss Jean L. Coyl of Detroit, Mich., for the Coyl collection	$10,000 00
Bequest of Mr. Christian H. Buhl of Detroit, Mich., for the Buhl law library	10,000 00
From Mrs. Clara Harrison Stranahan of Brooklyn, N. Y., for the Seth Harrison scholarship fund	25,000 00
Bequest of Dr. Corydon L. Ford, for the Ford-Messer fund	5,000 00
Contributions to the class of ninety-four scholarship fund	195 00
Contribution to the women's gymnasium fund	1,240 56

The accounts are as follows:

PHILO PARSONS FUND.

Receipts.

Balance in treasury July 1, 1894	$82 16	
Interest	3 36	$85 52

Disbursements.

Balance in treasury June 30, 1895	$85 52

MARY JANE PORTER FUND.

Receipts.

Balance in treasury July 1, 1894	$655 98	
Interest	27 08	$683 06

Disbursements.

Balance in treasury June 30, 1895	$683 06

GOETHE FUND.

Receipts.

Balance in treasury July 1, 1894	$301 01	
Interest	11 06	$312 07

Disbursements.

Paid vouchers for expenses	$50 12	
Balance in treasury June 30, 1895	261 95	$312 07

ELISHA JONES CLASSICAL FELLOWSHIP.

Receipts.

Balance in treasury July 1, 1894	$2 26	
Interest	1 09	
From Mrs. Elisha Jones	500 00	$503 35

Disbursements.

Paid vouchers	$500 00	
Balance in treasury June 30, 1895	3 35	$503 35

CONTINGENT.

Receipts.

Balance in treasury July 1, 1894	$2,936 91	
Interest	127 46	$3,064 37

Disbursements.

Balance in treasury June 30, 1895		$3,064 37

GYMNASIUM FUND.

Receipts.

Balance in treasury July 1, 1894	$2,826 97	
Interest on deposits	72 06	
Sale of $3,300.00 U. S. bonds, Nov. 19, 1894	3,765 50	
Interest on U. S. bonds, 2 quarters to Oct. 1	66 00	
Balance overdrawn June 30, 1895	120 75	$6,851 28

Disbursements.

Paid vouchers		$6,851 28

WOMEN'S GYMNASIUM FUND.

Receipts.

Balance in treasury July 1, 1894	$1,440 00	
Interest	61 32	
Gifts	1,240 56	$2,741 88

Disbursements.

Balance in treasury June 30, 1895		$2,741 88

FRIEZE MEMORIAL FUND.

Receipts.

Balance in treasury July 1, 1894	$1 50	
Interest	02	$1 52

Disbursements.

Paid vouchers		$1 52

COYL COLLECTION.

Receipts.

Received from the estate of Miss Jean L. Coyl	$10,000 00	
Interest	286 01	$10,286 01

Disbursements.

Balance in treasury June 30, 1895		$10,286 01

BUHL LAW LIBRARY.

Receipts.

Received from the estate of Mr. Christian H. Buhl.....	$10,000 00	
Interest	229 48	$10,229 48

Disbursements.

Balance in treasury June 30, 1895.....	$10,229 48

SETH HARRISON SCHOLARSHIP FUND.

Receipts.

From Mrs. Clara Harrison Stranahan.....	$25,000 00	
Interest	213 89	$25,213 89

Disbursements.

Balance in treasury June 30, 1895.....	$25,213 89

CLASS OF NINETY-FOUR SCHOLARSHIP FUND.

Receipts.

Subscriptions paid	$195 00	
Interest	10	$195 10

Disbursements.

Balance in treasury June 30, 1895.....	$195 10

FORD-MESSER FUND.

Receipts.

From the administrator of the estate of Dr. Corydon L. Ford—on account of bequest.....	$5,000 00

Disbursements.

Balance in treasury June 30, 1895.....	$5,000 00

H. SOULE, *Treasurer.*

STATE NORMAL SCHOOL.

REPORT OF PRINCIPAL.

HON. HENRY R. PATTENGILL, *Superintendent of Public Instruction.*

MY DEAR SIR: I herewith respectfully submit the official annual statement (being my second report of the work and conditions of the Michigan State Normal School) for the academic year of 1894-5, as provided by Section 5195 of Howell's Statutes.

SCHOOL ATTENDANCE.

The work for the year has, in general, been satisfactory. The enrollment has increased slightly, and the attendance considerably. Notwithstanding the business depression and financial difficulties of the last year, the patronage of the school has improved in both numbers and quality. Table 1 of the accompanying statistics concerning "Attendance and Graduates," reveals something of the former, and incidentally suggests what is meant by an improvement in the quality; i. e., the better preparation of applicants for the instruction which the Normal School offers.

The gain in aggregate enrollment was thirty-two over that of the previous year. This increase is all the more gratifying, inasmuch as there was reason to expect a falling off in attendance. First, the conditions of admission were somewhat more rigidly enforced. A number of applicants were refused admission, but accommodated in the training school. Several who failed to pass the entrance examinations were admitted to the preparatory classes. Others were advised to take their much needed academic training in their home schools, and left to return another year. Moreover, by resolution of the State Board of Education passed a year ago, a small tuition fee was this year for the first time charged all preparatory students. This was in addition to the registration fee collected from all students. The purpose, it was understood, was to discourage the attendance of the unprepared, and encourage the patronage of the local elementary and secondary schools for all merely academic work belonging to them. This lessened somewhat the total enrollment.

A similar tuition fee was, by the same authority, charged to students in the regular teachers' classes, who entered as special students without the intention to teach. This class included a few who were preparing for

college, a few who wanted instruction in particular branches, and others who came in for certain reviews. The aim of the school being "to prepare teachers," the purpose of this resolution is obvious. The school makes no attempt to furnish a general education. Its work is primarily professional. Intending teachers only are considered in the arrangement of courses, the construction of programs, and the administration of the school. Hence the fee charged of all irregulars. The effect has been to lessen the attendance of this class, and the school becomes by so much the more a distinctively teachers' school. The membership of the school was not only larger than that of the previous year in the face of these regulations, but it was the second largest in the history of the institution, being forty-eight less than that in 1892.

STATISTICAL INFORMATION.

TABLE I.—*Attendance and Graduates.*

1. Enrollment, 1893-4	922
2. Enrollment, 1894-5	954
3. Gain in Enrollment	32
4. High School Graduates, 1893-4	299
5. Per cent of Total Enrollment	31.3
6. High School Graduates, 1894-5	396
7. Per cent of Total Enrollment	41.5
8. Gain in High School Graduate attendance	97
9. Members of Senior Class, 1893-4	147
10. Per cent of the Year's Enrollment	15.9
11. Members of Senior Class, 1894-5	217
12. Per cent of the Year's Enrollment	22.8
13. Gain in Senior Class Enrollment	70
14. Gain per cent	47.6
15. High School Graduates among Seniors, 1893-4	93
16. Per cent of the Senior Enrollment	63.3
17. Per cent of the Total Enrollment	10
18. High School Graduates among Seniors, 1894-5	131
19. Per cent of the Senior Enrollment	60
20. Per cent of the Total Enrollment	13.7
21. Gain in High School Graduates among Seniors	38
22. Number of College Graduates, 1893-4	6
23. Number of College Graduates, 1894-5	6
24. Number of Post Graduates, 1893-4	15
25. Number of Post Graduates, 1894-5	10
26. Enrollment in Training School, 1893-4	346
27. Enrollment in Training School, 1894-5	381

There were certain marked and significant changes in the character of the year's attendance. The average scholarship of the school was perceptibly higher. More applicants presented themselves with reasonably good preparation.

While the gain in enrollment was thirty-two, the increase in high school graduates was three times this number (97). Not all of these came from officially accepted or approved high schools, but most of them did; and to the extent that the institution's policy of approving schools is a wise one, it is justified in this larger patronage. Last year the high school graduates were less than one-third of the school; this year they comprise more than two-fifths of the enrollment. The high schools, as

the State Board of Education years ago predicted they would be, are using the Normal School; and the public schools of the State are reaping the benefits of a larger scholarship, maturer teachers, and considerably more professional training. At the same time the Normal School finds itself justified in assuming in its students a somewhat more generous scholastic preparation before the professional work is begun. The result is believed to be a gain in either case.

A similar but somewhat less satisfactory inference may be made if the composition of the senior class be studied. It is no less instructive, however, and is presented briefly. While the gain in senior enrollment was a fraction over forty-seven present, the increase in the proportion of high school graduates among them is thirty-eight per cent. But while the ninety-three (93) high school graduates among seniors in 1893-4, were ten per cent of the school, the one hundred thirty-one (131) such graduates in the last class were nearly fourteen per cent of the school. Of course this can only mean eventually an appreciable increase in the number of such candidates graduating. The movement is instructive and encouraging viewed in whichever light. We need these graduates as a step towards a yet better quality of work in its classes. It is believed that with a high grade of secondary instruction before applicants enter, both the quantity and quality of professional training may be improved. This was one factor, at least, in the movement to affiliate the Normal to certain of the better high schools throughout the State.

Moreover, the schools over which students go out to preside need them as an incentive and stimulus to pupils attracting them to higher studies, and a safeguard against low standards and commonplace ideals. But for the accomplishing of the school's policy of affiliating with the local high schools, it needs the patronage of the best high schools, and the best graduates from all the high schools. Normal schools throughout the country are coming to divide with the colleges and the universities the patronage of secondary schools. Once the honor students in the high school continued their studies in college, and taught, if at all, incidentally. Now, more frequently than formerly, teaching and the management of schools offer a career to and invite whatever best ability and skill the schools can turn out or discover. The proportion of these is increasing among the patrons of the Normal School every year. The course of instruction fitting one to teach in the elementary or secondary schools of the State has need of the sharpest discrimination and most scholarly habits that the State offers. It calls for persons of a fixed purpose and abiding faith in the regenerations of genuine culture, and a chastened and ambitious zeal for achievement, such as the so-called professions covet.

It is encouraging to note the growing confidence of the strong and ambitious, the earnest and serious minded and patient workers among high schools, in the opportunities offered to real teachers and the need of a generous preparation for the work. But the question presents another side that occasions no little solicitude among those who have the school in charge. While the proportion of high school graduates among seniors has just about held its own with the growth of the school, the increase for the year seems to be chiefly among the one year candidates, or those

who, bringing their diplomas, enter upon the shorter course. The gain here is six per cent. The number beginning the two year course for high school graduates was somewhat less, proportionally, than for the two years preceding. You will agree with me that a more wholesome condition would be that which would accompany an increased patronage of the larger course. And the outlook is not wholly without promise. The two years just closed have been years of real business depression. Forced contraction in various industrial and professional lines, correspondingly diminished opportunities for employment, the relatively low estimate put upon teaching by the public in some communities, and the certainty of the State's pay to teachers have, together, during these years, sent many into school, and especially into Normal schools, who in more prosperous years might have found employment elsewhere. Others who really aspire to be teachers, capable, earnest, devoted, have entered the school also under difficulties and have equally felt the friction of narrowing circumstances. More than the usual number of students—both men and women—have been compelled to economize in their school expenses, and shorten the period of their preparation. The brief one year course for high school graduates offers an easy introduction to the school board and the public purse. One year of study secures to them a teachers' certificate that may be used in any county of the State for five years. The time has afforded a much needed probation during which examinations were no longer feared, private studies might be pursued, something could be earned, and a little something saved against the cost of another school day. It is known to be true that many have been thus temporarily content with this limited certificate who would otherwise have remained for a diploma, and who will yet return for one.

Under an earlier law the State Board of Education through the Normal School granted a certificate good for three years to those who had completed what was known as the Common English, or Common School course. In 1884 there was substituted for this the present Five Year Certificate course. Obviously the time has been too short to speak intelligently of any tendency among the holders of these certificates to return to the school and complete the longer course by an additional year of study. The matter is being carefully studied, however, and statistics collected which may be used in a subsequent report.

In the meantime it is quite evident that the apparent increase in patronage of the short courses is in part, at least, only temporary, and will be more than corrected in time, certainly with the return of prosperity in other industrial and professional lines. Much is expected in the coming years, and from the growing public sentiment favorable to better teaching.

The number of college graduates enrolled was the same as last year. The course offered them, as heretofore, is a half year in length, entirely professional, and is regarded as a heavy five months' work. One graduate undertook it at the first of the year, but left it at the end of six weeks. It is the judgment of the Council that the time should be lengthened and the work slightly increased, though in its present form it may be finished by a mature graduate of scholarly tastes who has had some experience in teaching, in the half year now required.

Of the ten students who spent the year in post graduate work, three had resigned paying positions to continue their studies; two returned to

finish additional courses; and all to prepare for special teaching in high school or college. For such further and special studies the school, with its numerous electives, offers large and growing opportunities. It is believed that the movement may well be encouraged.

Table II inserted here will show to the reader the growth of high school patronage in the Normal School since the school year 1888-9 inclusive. Particular attention is called to sections 2 and 3 of the Table, showing the proportion of high school students to the total Normal School enrollment, and the large number of graduates among these high school representatives.

TABLE II.—*High School Patronage.*

1. High Schools sending Students.

Years.	High schools represented.	Normal school enrollment.	Number reporting from high schools.	Per cent.
1888-9	148	809	281	34.7
1889-90	150	811	261	32.2
1890-1	210	909	437	48.1
1891-2	200	1,002	451	45.
1892-3	192	987	422	45.
1893-4	192	922	392	42.5
1894-5	224	954	659	69.

NOTE.—The number 659 reported from high schools is perhaps too large; some seem to have misread the question. The data of previous years are also not altogether reliable; but the trend of high school patronage in the school is doubtless correctly read, and the table is inserted as an approximately correct statement of an important truth.

2. High Schools sending Graduates.

Years.	High schools represented.	High schools sending graduates.	Per cent.
1888-9	148	81	54.7
1889-90	150	86	57.3
1890-1	210	135	64.3
1891-2	200	142	71.
1892-3	192	150	78.
1893-4	192	159	83.
1894-5	224	174	77.7

3. Ratio of High School Graduates to High School students in the Normal.

Years.	High schools represented.	Number reporting from high schools.	High school graduates reporting.	Per cent.
1888-9	148	281	135	48.
1889-90	150	261	135	51.7
1890-1	210	437	223	51.
1891-2	200	451	265	58.7
1892-3	192	422	308	73.
1893-4	192	392	299	76.3
1894-5	224	659	396	60.

THE FACULTY.

The corps of instructors remains practically as it was at last report. No changes have been made in the heads of departments. The following additions, however, are respectfully reported:

Mr. Thomas C. Severance was employed at the beginning of the year to assist in the Department of Pedagogy. Throughout the year, also, he had charge of one section of the beginning Latin.

Miss Chloe N. Daniels also began the year as an assistant in History and English.

Mr. Dennis C. VanBuren, a graduate of the Four Year Literary Scientific course in 1894, was during the first quarter of the year made a half-time assistant in mathematics, being given full work during the second semester.

In February owing to an increase in the size and number of classes in geography and drawing (making up one department) another assistant became necessary, and Miss Eloise C. Whitney was employed.

The classes have been large, and members of the faculty, both professors and assistants, have carried from four to five sections a day, varying with the term or quarter and the organization of new classes.

Four members of the faculty carried on through the year a line of study at the University of Michigan, one, Miss Abbie Pearce, assistant in English, taking in June the degree of Ph. B. from that institution. Six others pursued more or less regularly throughout the year advanced courses in the Normal School.

ANNIVERSARY DAY.

On the twenty-eighth of March, 1849, was finally consummated a movement that had been active in Michigan for years—to establish some sort of agency for the training of teachers. Associations had been discussed, and the more formal teachers' institutes, and their success in a few other States was known. School Journals had been considered, and the experience of teachers elsewhere gathered up and used to advantage here. It was strongly urged by their friends also that the branches of the University, of which there were several in the other parts of the State, might be utilized for this purpose of fitting teachers for their work. There were not wanting along with earnest advocates of a separate school, vigorous opponents also, who urged the inadequacy of public funds, the lack of supporting public sentiment, even the needlessness of a school to undertake what every good school was already doing—making teachers by making scholars.

The first tangible result of all this discussion came as noted above in the spring of 1849. It was a memorable campaign of almost a decade in Michigan that ended in the legal ordering of a Normal School to be established somewhere on what was then known as the Central Railroad connecting Detroit and Chicago through the southern part of the State. It was a great forward step for any State at that time, and especially for a comparatively new State in the Northwest. There were few precedents in this country, and none among a frontier people.

The school was finally located at Ypsilanti, thirty miles from Detroit, and near neighbor to the young and struggling State University. The institution was informally opened with a brief institute October 5, 1852, and as a regularly equipped school having State support, in March of the year following. It thus stands alongside of the University as one of the State's oldest educational institutions. Forty-two classes have been graduated, equipped with the State's diplomas or certificates, numbering in the aggregate 2,696 students. Many hundreds more have attended its classes. Every county in the State has felt its influence, and it has an honorable record.

To commemorate its founding in an appropriate way, and to make deserved and public acknowledgment of its generous service, the 28th of March, 1895, was declared a holiday for the school, and the day and evening were given over to history and reminiscence. The proceedings of the two sessions were subsequently published by the authority of the State Board of Education. Besides abstracts and other general matter, the pamphlet includes the full text of Prof. Daniel Putnam's address of the occasion,—"A Sketch of the Steps in the Evolution of the Teaching Profession in Michigan."

It is earnestly hoped and recommended that, as the 28th of March recurs in each succeeding year, it may be appropriately observed and bring with it some worthy contribution to the history and achievements and influences of the State Normal School. Much of its best history is yet little more than tradition. The occasion may serve at least as an incentive to gather up, as the years go on, the dropped strands of its life. Whatever was really worth incorporating into the school or, being incorporated, influenced its work or its usefulness, is equally worth preserving.

It may not be out of place here to say that any information concerning the school's early days, especially old documents or reports or programs; copies of newspapers of the day with items of the school, its students, and teachers; or information concerning the legal or social status of the school and its graduates, all will be gratefully received and appreciated at the office of the Principal. If the owner of such materials so request, they will be copied and the original returned to him.

THE CURRICULUM.

Since the last report sent to you from this office considerable change has been made in the course of study. The aim has been primarily to simplify the requirements; and, while providing a good general preparation for every student, to make the course adjustable to the diverse needs of the various classes of teachers fitting themselves for particular positions and for superior instruction in narrower lines.

To this end a minimum amount of instruction is prescribed and required of all. The number of electives has been increased, and the conditions under which they may be taken somewhat modified. There are fewer options offered among separate subjects, and more among groups. All distinct departments except pedagogy are placed upon the same footing as to these electives. The selection of these specialties (elected groups of studies given special protracted attention), is under the direc-

tion or with the consent of the Principal; and the prosecution of this specialty (along with other electives), under the head of the department concerned.

The prescribed matter is as follows:

PRESCRIBED WORK.

1. Academic Subjects. — 260 weeks.
   (1) English, three semesters.
   (2) Science, three semesters.
   (3) History, three semesters.
   (4) Mathematics, three semesters.
   (5) Drawing, one semester.

2. Teachers' Reviews. — 50 weeks.
   (1) Grammar, ten weeks.
   (2) Arithmetic, ten weeks.
   (3) Geography, ten weeks.
   (4) Physiology, ten weeks.
   (5) History, ten weeks.

3. Professional Subjects. — 120 weeks.
   (1) Psychology, one semester.
   (2) Applied Psychology, one semester.
   (3) Method in Common Branches, one semester.
   (4) Laboratory Practice, ten weeks.
   (5) History of Education, ten weeks.
   (6) Practice Teaching, two semesters.

A continuous line of electives covering from three to five years each, may be had in any one of the following departments: history, music, mathematics, English, German, French, Latin, Greek, physics and chemistry, biology, and geography and drawing. Disconnected and aimless selection of studies is discouraged or prohibited. Electives are, for the most part, from a single department or from one group of related subjects. In three departments—music, the ancient classics, and the modern classics—the work is altogether elective; yet very few leave the school without having had a semester at least of music, and a majority of the graduates have had more or less of at least one language beside English.

From the following table upon Courses of Study, certain of these facts may be read more in detail.

TABLE III.—*Courses of Study.*

Courses.	Length, years.	Prescribed work.		Elective work.		Professional work.		Academic work.		Seniors.
		Weeks.	Per ct.	Weeks.	Per ct.	Weeks.	Per ct.	Weeks.	Per ct.	
Full diploma	4	420	67	210	33	160	25	480	75	40
Short diploma	2	190	59	130	41	180	37½	300	62½	40
Full certificate	3	370	77	110	23	140	29	340	71	40
Short certificate	1	160	100	.....	.....	160	100	.....	.....	80
College graduate	½	80	100	.....	.....	80	100	.....	.....	5
Advanced	2	.....	.....	320	100	80	25	240	75	10

The prescribed work varies from a hundred per cent in the short certificate course and that for college graduates, to fifty-nine per cent in the short (two year) diploma course. These are both for high school graduates. For the former the work is all prescribed in order that the requisite professional training may be compassed; the latter is almost half elective, out of deference to the extended and generally excellent discipline of the high school four years. One who completed the short (one year) certificate course, and subsequently returns to finish in a year the life certificate course, finds his entire second year elective; that is, of his two years of work the prescribed and optional subjects are each one-half of the whole. In the case of one who, as a high school graduate, takes the two years consecutively, 190 weeks, or fifty-nine per cent of the work is prescribed, and 130 weeks left to his choice. In the advanced course of two years, leading to the degree of B. Pd. the entire work is elective.

A not less important question concerning courses of study for Normal Schools also, is that of the relation between the professional and academic subjects.

In the present arrangement for the Michigan Normal School the professional instruction comprises twenty-five per cent of the regular (four year) diploma course. The proportion is slightly greater in the full (three year) certificate course, more than thirty-seven per cent in the short (two year) diploma course, and entirely professional in the short certificate and college graduate courses.

How this proportion of professional work may be safely and wisely increased is the question to be met. The answer does not appear. The difficulty, however, is not peculiar to Michigan or the West; besides the situation is not so grave as would appear from the table. Much of the work scheduled as academic is in a very real sense done from the standpoint of the teacher, and so is professional. Along with most of the instruction is carried a line of bibliography and criticism designed to reenforce and estimate the educational value of the work. The instruction becomes professional to the extent that its worth, as a means of culture, is adequately considered and well-grounded. Moreover, every group of secondary studies pursued as a specialty, is followed by a period of ten or twenty weeks of more formal and systematic study of the conditions of best teaching in the group. Finally, all instruction in such school is professional, when the learner is an intending teacher, and the instructor throughout his teaching bears this fact in mind.

Respectfully submitted,

RICHARD G. BOONE.

Ypsilanti, Mich., June 16, 1896.

HON. HENRY R. PATTENGILL, *Superintendent of Public Instruction.*

MY DEAR SIR: As suggested by some members of the board of education I submit herewith a summary statement of the estimates and expenditures for the school year 1895-6.

The estimates were made for the six months (Jan. to June), the two summer months, and the four fall months. The expenditures are made up for the ten school months Sept. to June, and the two summer months. If this is in any way different from what a comparison of the estimates and expenditures of the fiscal year would show, it would still seem to be fair, as the expenditures have not grown less.

(1) The entire insurance money has been counted in the expense of this year, making the total estimate..... $70,250

(2) The expenses allowed aggregate..... 62,059

(3) Outstanding bills or bills likely to be incurred before July 1 6,601

(4) Total actual and estimated expenditures..... 68,660

(5) Net balance of estimates..... 1,590

(6 Beginning with July, 1895, and counting the pay roll for the current month (June, 1896), the total is $516 less than the estimate made up in 1895.

(7) The estimate for oil was $3,000; the expenditure has been $4,113. This, as appears on the surface, is $130 more than last year; but for this year the cost of drawing the oil has been kept separate, last year it was not. The actual difference in the expenditures for heating for the two years is perhaps less than $50.

(8) The contingent fund runs over the estimate $319, but this is a variable class. Probably the postage has been included here (allowance $200, named in the records $29); here also, I have put the cost of the Commencement dinner.

(9) In the library columns I have included all repairs of books, etc., the amount still falling more than $700 below the estimate.

(10) Of the amount charged to the Physical Laboratory nearly $300 was left over from the previous year.

(11) The estimate for diplomas was made up from the Senior class of June, 1894. The present class for whom the diploma expense was incurred is larger by 100.

(12) Including the Year Book soon to be issued, and allowing for Commencement printing yet to be reported, the printing bill for this year has been about $300 less than was estimated. We have cut off some printing planned last year to be done, because it was thought by the board that the expenditures were running over the alowances.

Most respectfully,

RICHARD G. BOONE,

Principal.

Estimates and Expenditures for school year 1895-6.

	Salaries.	Fuel.	Supplies.	Repairs.	Contingent.	Library.	Insurance.	Phys. Lab'y.	Biol. Lab'y.	Light.	Water.	Postage.	Diplomas.	Extra labor.	Music.	Frt., express.	Bd. visitors.	Train. school.	Printing.	Advertising.	Tel. and Tel'g.	Totals.
Legislative estimates	$55,000	$3,000	$1,000	$1,500	$1,200	$2,000	$1,500	$300	$600	$900	$600	$200	$150	$300	$200	$125	$100	$500	$900	$100	$75	$70,250
Expenditures	$49,068	$4,113	$774	$1,201	$1,319	$1,138	$1,128	$697	$116	$591	$365	$29	$206	$132	$133	$101	$167	$372	$307	$30	$69	$62,059
Outstanding bills (estimated)	$5,416	.....	$100	.....	$200	$125	.....	$25	$25	$150	$150	$50	.....	$25	$25	$25	.....	$25	$250	.....	$10	$6,601
Increase	.....	$1,113	.....	.....	$319	.....	.....	$422	.....	.....	.....	.....	$56	.....	.....	$1	$67	.....	.....	.....	$4	$1,982
Decrease	$516	.....	$123	$299	.....	$737	$372	.....	$459	$159	$85	$121	.....	$143	$42	.....	.....	$103	$343	$70	.....	3,572
Net decrease	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	$1,590

STATE AGRICULTURAL COLLEGE.

REPORT OF PRESIDENT.

HON. HENRY R. PATTENGILL, *Superintendent of Public Instruction.*

DEAR SIR: I have the honor to submit herewith my annual report for the year ending July 30, 1895.

The arrangement of our terms is such that our long vacation comes in the winter, and the college year closes in August. In this report the enrollment of students is for the college year ending August 9, 1895, and the list of graduates is the class of '94. The enrollment for the year was the largest in the history of the College, and was distributed as follows:

	Male.	Female.
Collegiate and special courses	363	24
Post graduates	13	2
Total	376	26

Total enrollment, 402.
Total number of graduates, 22.

FACULTY AND OTHER OFFICERS.

Lewis G. Gorton, M. S., President.

Robert C. Kedzie, M. A., M. D., Professor of Chemistry and Curator of the Chemical Laboratory.

William J. Beal, M. S., Ph. D., Professor of Forestry and Curator of the Botanical Museum.

E. A. A. Grange, V. S., Professor of Veterinary Science.

Levi R. Taft, M. S., Professor of Horticulture and Landscape Gardening, and Superintendent of the Horticultural Department.

Howard Edwards, M. A., LL.D., Professor of English Literature and Modern Languages.

Herman K. Vedder, C. E., Professor of Mathematics and Civil Engineering.

Edson A. Lewis, 2d Lieutenant, 18th Infantry, U. S. A., Professor of Military Science and Tactics.

I. H. Butterfield, Secretary.

Clinton D. Smith, M. S., Professor of Practical Agriculture and Superintendent of the Farm.

Charles S. Weil, S. B., Professor of Mechanical Engineering and Director of the Mechanical Department.
Walter B. Barrows, S. B., Professor of Zoology and Physiology and Curator of the General Museum.
Frank S. Kedzie, M. S., Adjunct Professor of Chemistry.
William S. Holdsworth, M. S., Assistant Professor of Drawing.
Philip B. Woodworth, B. S., M. E., Assistant Professor of Physics.
Alvin B. Noble, B. Ph., Assistant Professor of English Literature and Modern Languages.
Fred B. Mumford, M. S., Assistant Professor of Agriculture.
Wilbur O. Hedrick, B. S., Assistant Professor of History and Political Economy.
Paul M. Chamberlain, M. E., Assistant Professor of Mechanical Engineering.
Warren Babcock, Jr., B. S., Assistant Professor of Mathematics.
Mrs. Linda E. Landon, Librarian.
Gager C. Davis, M. S., Instructor in Zoology.
Charles F. Wheeler, B. S., Instructor in Botany.
A. L. Westcott, B. M. E., Instructor in Mechanical Engineering.
Dick J. Crosby, B. S., Instructor in English.
Alva B. Stevens, B. S., Instructor in Agriculture.
Burton O. Longyear, Instructor in Botany.
Cyrus C. Pashby, Instructor in Mathematics.
Gordon H. True, Instructor in Dairying.
E. A. Edgerton, Engineer.
Thomas Gunson, Foreman of Greenhouse.
Roscoe C. Bradley, Assistant Secretary.
Ernest Wittstock, Foreman of the Farm.
Vinton V. Newell, Foreman in Machine Shop.
Thomas Durkin, Foreman of the Horticultural Department.
Charles E. Hoyt, Foreman of the Wood Shops and Foundry.
H. M. Howe, Clerk to the President.
Chase Newman, Clerk of Mechanical Department.

We have two principal courses, each requiring four years for completion. In the Agricultural Course more work is done in botany, chemistry, and the other sciences, while in the Mechanical Course more attention is given to mathematics and drawing. A feature of our work which we emphasize is that of manual labor. Each student is required to work two and one-half hours a day either on the farm, garden, or in the shops. The student receives compensation for his labor on the farm or garden, when such work is not educational. A large amount of experimental work in agriculture is done by the students, such as tests of varieties; tests of fungicides and insecticides; prevention of smut on corn, wheat, and oats; depths of planting, etc. Our aim is to make the work, both in agriculture and mechanics, intensely practical. Our magnificent equipment enables us to carry on this practical work with all our students. Besides the two courses above named, in January and February we had a six weeks' course in Dairy Husbandry. On account of lack of room this short course will not be continued. During the long winter vacation a large amount of work was done at Farmers' Institutes, held at various

places in the State. This work is done by the members of the College faculty and instructors, and is entirely gratuitous. College extension work was furthered by the Farm Home Reading Circle. The circle offers a systematic course of reading; it furnishes books through the Secretary at greatly reduced rates, and acts in a limited manner as a bureau of information on agricultural topics. The aim has been to supply a course that will furnish agricultural information and assist those who desire to secure some knowledge of science, as applied to agriculture. This work during the past year has been unusually successful.

Some minor changes were made in our courses of study, these changes being made in order to have a more logical and systematic arrangement of the studies, and to enable us to add more work in agriculture.

Various additions and improvements were made in the different departments. We have facilities for still more students, and we urge the coöperation of the county commissioners and the principals of high schools in sending such students as are qualified to take our courses.

All of which is respectfully submitted,

LEWIS G. GORTON,
President.

REPORT OF BOARD OF VISITORS.

HON. HENRY R. PATTENGILL, *Superintendent of Public Instruction.*

SIR: The undersigned constituting a Board of Visitors to the State Agricultural College, appointed under provisions of Section 6 of Act 103, Session Laws of 1893, herewith submit our report. On account of the recent discussions concerning the work of this institution and the somewhat prevalent feeling that it was not fulfilling its mission as a part of the educational machinery of the State, we have thought proper to enlarge the scope of our report beyond what would ordinarily be considered necessary or desirable.

In the performance of our duties we spent three days at the institution familiarizing ourselves with its equipment and the work of the several departments. In doing this we were assisted in every way possible by the State Board of Agriculture and the faculty of the college. We were further greatly aided by the very full and valuable report of the Committee of the Faculty appointed by the State Board of Agriculture Sept. 10, 1895, which report we are permitted to use as a part of our own, and which we take as the basis of our recommendations.

In a general way we may state that, in our opinion, Michigan Agricultural College has a superior equipment for the work of its several departments, and a faculty composed of enthusiastic and capable gentlemen.

The facilities which the college affords for obtaining an education such as should be given in an institution of this character, have not, we believe, been fully appreciated by the people of our State. Especially does this seem to be true in reference to the work of the Mechanical Department. We are glad to note that measures have already been inaugurated which will call public attention to the opportunities here offered for a thorough training along the lines of work attempted.

We would earnestly recommend that, as changes for any reason are found necessary in the personnel of the State Board of Agriculture, there should be placed on that Board at least one man of broad knowledge and varied experience in the field of the mechanic arts, and one who is recognized as an able educator. In making this recommendation, we do not forget that the ideal controlling board for such an institution does its most important work,

1st, in determining the general policy of the institution;

2d, in selecting the president and faculty;

3d, in giving entirely into the hands of the president and faculty, the management of that part of the work which is purely internal.

But, in determining the policy of the institution and in the selection of instructors, and especially in the relation of the institution to the public, a board composed of men of widely varying business and professional experiences will, we are sure, be more efficient than a board chosen largely from any one class of citizens.

Taking up the recommendations of the Committee of the Faculty in the order there given, we would suggest:

1st. The definition of the function of the institution—"A school for technical and professional training in farming and engineering"—is good, and the desirability of placing this before the citizens of the State is clear. We would emphasize the fact that this is not especially "a school for farmers' sons and daughters," but "a school for every young man and woman in the State who is ambitious to obtain an education along the lines embraced in its several courses." We believe that the idea that this is a school simply for farmers' sons has restrained very many students from accepting its proffered advantages, who might have found here what would have more fully supplied their needs than is offered by any other institution in the State.

The Committee of the Faculty discuss at some length the advisability of making the earlier years of the course more technical, in order that students may sooner enter upon the scientific phases of agriculture, and to that end recommend a co-ordination and concentration of courses of study. Our observation has been too limited to pass definitely on the wisdom of the changes suggested. As a general proposition we endorse the recommendation, but would advise care that the younger and fresher students be not confused by too early and sudden a shower of technical terms and tables. All scientific study should be approached with caution, for it can only be understood and mastered after due preliminary preparation.

The third recommendation relative to change of vacation, is heartily endorsed. The most serious objection we have heard urged against a winter term at the college, is that it would deprive the farmers' institutes of the valuable assistance of members of the college faculty. This would not, however, seem to us inevitable. With a judiciously arranged course of work in the institutes, members of the faculty could reach each county as often as once in three years without serious loss of time at the college. And if, during the absence of each professor, there were an arrangement for a few short courses of lectures to the college classes by successful farmers on the practical problems of the farm, stock-breeding, the market garden, and the orchard, there would perhaps be a gain rather

than a loss, to the students by the temporary change of intellectual diet. We certainly have many men in our State whose successful experience in practical agriculture has fitted them to give valuable instruction to the prospective farmer in some phases of the subject not usually treated in the class-room.

We especially call attention to the fourth recommendation relative to special training in the way of winter courses for special students. We are fully persuaded that the establishment of such special courses will be of lasting benefit to the college, as well as a great boon to many of our intelligent, enthusiastic young men and women who cannot be spared from the field and home during the busy season. No one thing would, in our judgment, contribute more towards bringing the college in touch with these young people than such an arrangement.

The fifth recommendation, that an effort be made to encourage the study of elementary science in the district schools of the State, with the idea of stimulating a desire for the knowledge to be obtained at the Agricultural College, is wise, if practicable. We think a more speedy and surer way of accomplishing the result aimed at would be through supplying the school-rooms of the State with the M. A. C. Record, and from time to time with such bulletins as would interest pupils. We are sure that the commissioners, teachers, and school boards will cheerfully co-operate, if the matter be properly brought to their attention, and that it will prove to be "seed sown on good ground."

The reasons for the establishment of a "ladies' course" are clearly and forcefully expressed in the sixth recommendation of the committee. Such a course or courses, should give opportunity for thorough instruction in the chemistry of the kitchen, and in floriculture, poultry raising, the care of bees, and the cultivation of small fruits, with the view of fitting many young women to engage in these occupations successfully. Michigan is fortunately situated for profitable fruit and dairy farming, and many of our young women would, if properly trained along these lines, gladly take advantage of such instruction and find profitable and pleasant employment at home, instead of swarming city offices, stores, and work-shops.

We do not approve of the seventh recommendation, but would advise raising rather than lowering the requirements for admission to the college, as the establishment of a preparatory department would practically do. Whatever is cheaply bought is lightly appreciated. The regular course should be strengthened, and this can be done only by requiring a better preparation of students when entering. These requirements should be equal to those for similar courses in other colleges. While, for the time being, coaching classes may be necessary for the benefit of those who may be deficient in some studies, students should not be encouraged in applying for admission till they are thoroughly prepared for the work of the courses they wish to pursue.

The other recommendations relating to abolishing or reducing matriculation fee, organization of boarding hall where board shall be furnished at not to exceed two dollars per week, better handling of text-books, the discouragement of expensive entertainments, and encouragement of plain, simple, and inexpensive social and individual life, also recommend-

ing the abolition of the dormitory system and calling for better terminal street car facilities, meets our approval with this modification:

1st. That economy shall not be had at the expense of good, substantial, wholesome food, properly served as well as prepared. Students may be fed too cheaply, at the expense not only of health, but of self respect and table etiquette.

2d. The same is true of social and individual life. Extravagance should be discontinued, but care should be had not to grind down to carelessness and indifference. Tastes for good entertainments should be cultivated, as well as general culture in social and individual life.

3d. The dormitory system should be abolished, but only as fast as other adequate and wholesome facilities are provided.

We note that the instructive and experimental work in dairying is carried on in the basement room of the agricultural laboratory, inadequate in size and inefficient in equipment. We suggest the erection of a modest building; large enough for the actual practical dairy work, as well as the experimental and illustrative. The equipment should include complete water facilities and approved scientific and practical apparatus.

We also recommend better housing of engines, boilers, and coal, and the furnishing at once of sanitary closets in buildings and on grounds. (This last is much needed.)

In conclusion, we are pleased to learn that most of the suggestions made by the Committee of the Faculty have already been adopted by the State Board of Agriculture; and we shall look forward to increasing appreciation of the college and, therefore, the most beneficial results therefrom.

The fact that the Controlling Board has recognized the general belief that the institution has not in years past fully commended itself to the approval of the public, is, we are sure, a sufficient guaranty that in the future we may expect such changes as will bring it into touch with the most progressive and intelligent thought of the day.

We have full faith that in the exact ratio in which this is accomplished, will the college maintain its position as a school where the young, seeking education along the lines covered by its courses of study, may find it to their lasting benefit to avail themselves of the advantages here offered.

All of which is respectfully submitted.

Dated May 18, 1896.

C. A. Gower,
R. M. Bates,
F. H. Stone.

MICHIGAN MINING SCHOOL.

REPORT OF DIRECTOR.

To the Honorable Board of Control of the Michigan Mining School:

GENTLEMEN—I have the honor to present my report of the Michigan Mining School for the year 1894-95.

The vacant professorship of Civil and Mining Engineering was filled by the election of Frederick W. Sperr, of the University of Ohio. Professor Sperr has shown himself to be an energetic and hardworking instructor.

Owing to the financial depression, the attendance during the earlier months of the year was smaller than usual, but it increased very satisfactorily later. Since the school was organized in 1886, the attendance and the number of new students entering each year, have been as follows:

1886-7	1887-8	1888-9	1889-90	1890-1	1891-2	1892-3	1893-4	1894-5	
23	29	40	35	61	78	101	82	94	Attendance.
23	15	16	15	46	40	45	17	49	New Students.

The prospect for new students is better now than I have ever before seen it at this time of the year; yet since the promises of prospective students are very delusive, I prefer to err on the conservative side. One is not to expect from this too large a total attendance next year, since our graduating classes have been large for the past two years, while the regular students who have joined the school during those two years have been few. The effect of this will show most strongly during the coming year. About forty-one of the students now in the school are expected to return next year, and I consider that it is safe to estimate a total attendance of at least seventy students next fall term.

The pronounced difference between the attendance last year and that which I have estimated for the coming fall term, is caused principally by one thing—the attempt made this summer to enable the young men of this district to take a greater advantage of the shop courses than has been possible at any time in the past; and hence a number of students, who could not be admitted to any other department of the school, were taken in as specials to do shop work. This admission of such crude material was done in the way of an experiment, in conformity with the general policy of the school to help everyone who can profit from its assistance. The experiment has proved a failure, and it will not be tried again.

Over two years ago the Legislature made a partial appropriation for an engineering building and for its equipment. At the time that appropriation was granted, it was expected that the Legislature of 1895 would provide the means for completing the work. This was refused by the Governor and the Legislature and, as a result, part of the rooms in both buildings cannot be used for their designated purposes.

In the Engineering Hall, the machine and pattern shops, boiler room, tool rooms, lavatories, and lecture and drawing rooms, have been partially fitted up and are arranged for present use.

The engine and the line shaft for the dynamo room have been set up. Beyond this, nothing has been done towards fitting up the dynamo room, electrical laboratory, and the laboratory for testing materials, although much valuable apparatus has been collected through the generous gift of Mr. J. M. Longyear.

In Science Hall, or the main building, two of the basement rooms that are much needed are now dismantled, and will have to remain so until an appropriation is made. The library has been moved to its more commodious quarters on the second floor, the old library is to be fitted up temporarily for a geological laboratory, work rooms are to be provided, and the old boiler room will be arranged for a students' room. It is also hoped to place on exhibition the materials collected in accordance with the law, to illustrate the local geology and mineralogy. It is also desired to make some needed changes in the stamp mill and furnace building. Most of these are in the way of general repairs.

The heating and power plant has been partly remodeled and is doing good service, although much more needs to be done, particularly in Science Hall, before it will be in the condition that can be called satisfactory.

The most important events of the year have been the adoption of a complete elective system; an arrangement whereby the preparatory work for entrance can be done at the school and under its direct supervision; and the introduction of a short course for those who can not spend the usual time.

Concerning the elective system, it may be said that in this country two systems have been chiefly followed in the higher educational institutions —the fixed and the elective. The latter was introduced first in this country by President Wayland of Brown University, and it has since been systematized and developed with remarkable skill and success by President Eliot of Harvard. Indeed the system has proved to be so well adapted to the needs of modern times and to be so popular that it has made its way in the face of strenuous opposition, until all or nearly all of our colleges and universities have employed it for their work in general, or literary and scientific education.

In technical, or engineering education, the case has been different, since even those schools like Harvard, Leland Stanford, Jr., or the University of Michigan, which have a most liberal elective system for general education, have still only a partially modified form of the rigid system in the engineering, or technical, courses. The rigid system is disguised in most institutions in their technical work under the head of election between various fixed courses, which may or may not have a few options, or it masquerades under an elective dress to which it has but little, if any, right.

The elective system, proper, in any of the higher institutions giving general education, has consisted of two features: 1st, The Essential Studies; 2d, The Sequence of Studies. The first is composed of those studies which are considered in each institution as necessary, or essential, to maintain the scholarship or traditions of the school in question; and in engineering schools, not even excepting that at Harvard, the required and essential studies today constitute the chief amount of the entire course in any of the engineering branches. In the case of general or literary education, the number of studies that are considered essential usually rapidly diminishes according to the experience and numbers of the faculty, until only a few studies are required; and in time this feature will be fully eliminated.

Regarding the second, or "Sequence of Studies," but little public attention is called to it in any statements relating to electives in any institution, although it is the keynote of them all. No school can maintain any elective system or any work above a kindergarten or primary grade, without carefully considering the question of the natural sequences. It is the unwritten law that no student can take calculus who has not previously prepared himself in algebra, nor can he study petrography without any knowledge of mineralogy. All the catalogs of the advanced schools show that they tacitly recognize the law of sequence of studies with greater or less fulness, but I do not know of any which call attention to the fact, except the recent prospectus of the Michigan Mining School.

The Michigan Mining School has attempted to apply the methods in use in the elective systems employed for general or literary instruction, to technical or engineering education, so far as the school's province of training men to assist in the development of the mineral wealth of the country will enable it to do. In accomplishing this it has tried to reduce to a minimum all studies to be taken by every student, to conserve the sequence, and to obtain thorough work by the business method of individual responsibility.

The only studies required of all the students here are "elementary geology" and the "elementary principles of mining"—these are asked for because it is believed that in any institution dealing with the problems relating to the mineral wealth, the student should have some knowledge of geology and of mining methods, and also because the Director (who in this case happens to be in charge of the geological instruction) desires to come into personal contact with every student in the school early in his course. The above mentioned studies require, altogether, the student's presence in the class room only three times a week for thirty-four weeks.

Outside of the elementary geology and mining the student is allowed unrestricted freedom of choice in his studies, the same as he is in the literary, but not in the engineering, work of Harvard, Michigan, or in any other of our universities.

Emphasis is here placed upon the almost absolute freedom of choice at the Mining School, because many have mistaken the natural "sequence of studies" for "required studies." This error happens because, in the prospectus of the elective system, issued last May, special attention was called to the natural sequences in chemistry, metallurgy, mechanical,

electrical, and mining engineering, ore-dressing and geology, provided any student wished to obtain every particle of instruction that is given in the Mining School in any of the subjects named. These outline schemes are merely signs showing the student some of the numerous ways of reaching the upper rooms of the house, but he has absolute freedom to use any of the other numerous ways that might just as well have been pointed out. Owing to the fact that in the usual discussions of elective systems the natural sequence of studies is not dwelt upon, it was expected that these guiding lines would be mistaken for required courses by many readers; although it was thought the error was sufficiently guarded against in the prospectus on pages 11, 13, 14, and 25. The precaution seems not to have been entirely successful, since a friendly hand in a friendly journal* has penned the following: "Students are allowed to select one of several courses with a certain principal subject, and in each course certain studies are required and the rest are elective. The school thus allows greater freedom in the selection of studies than do most mining schools." This friend has entirely misapprehended the facts, as the statements made above show. The freedom of choice is not only greater than that allowed in all other mining schools, but, so far as the present writer is aware, also greater than that granted in all other technical or engineering schools whatsoever.

Although this is the first time this general freedom has ever been allowed in any engineering school, the problem seemed to be so fully solved, so far as the special conditions of this institution are concerned, that when it was brought before the faculty and the Board of Control it passed both bodies without a single objection. The ostensible working of the system does not go into full effect until September 16 of this year, yet the choice of electives has already been made; and the passage of all the students from a rigid system to an elective one, has been accomplished, not only without any hitch or difficulty, but also with the students' unanimous approval.

The courses in operation up to the time of commencement, August 16 of this year, are two exceedingly rigid ones. The required work demanded of the student from seven to ten hours a day, five days a week, for forty-five weeks a year, and for three or four years (according to which course was taken) in the class room, laboratory, field, mine, or mill, while his daily preparatory work had to be attended to in outside time. When it is considered that all students, both special and regular, have been transferred, not only without trouble, but with general satisfaction, from one system to the other, the success seems almost phenomenal.

In the elective system of the Michigan Mining School, the unit of work is taken as three hours a week in the class room or nine hours a week in the laboratory for thirty-four weeks; and this amount of work is called a course or a full course, while any subject scheduled in the prospectus for less time is taken for its proportionate part of a full course. The student, to obtain the degree of Bachelor of Science, must complete eighteen full courses, and to obtain that of Mining Engineer, twenty-two full courses, which in both cases include the subjects of elementary geology and mining.

* American Geologist, 1895, XVI, 120.

Owing to the fact that the regular work in the Michigan State Mining school extends through forty-five weeks of the year, a good student can obtain his degree in three or four years, depending upon the question of whether he remains during the forty-five weeks each year, or for only the first thirty-four weeks; and, also, whether he wishes his course to be largely of practical or theoretical work.

At the present time this institution has announced sixty-five different subjects, or studies, from which the pupil can make up his eighteen or twenty-two full courses, only one of these full courses being of required work. In a required system of study the pupil can be carried over all the subjects that experience considers necessary for the successful prosecution of his future profession; but this is always done at the expense of thoroughness, and it pays no, or but little, attention to the individuality of every student, or to the rapidly increasing specialization of work in every subject. It gains breadth, but it is at the expense of depth.

In an elective system the individuality of the student, the specialization of work in modern times, and the limitations of human capacity are all considered. It loses in breadth, but it gains in the greater interest and consequently greater depth of the work done.

Much can be said in favor of both systems, as the writer knows from long experience with both; but there is one point that ought to be the controlling factor in every engineering school in deciding what it will do for the future. If the signs of the times and the history of education are read aright, this is true and certain:—that whether we like the elective principle or not, whether we are willing to adopt it or not, every engineering or technical school in the land must and will adopt it in its entirety, sooner or later, or else perish. It needs no Daniel to read the handwriting all over our walls.

During the past year the work in the school has gone on very harmoniously and pleasantly, on the whole, and the clouds are mostly below the horizon. So far as the educational side of the school is concerned, it would seem that it is entering upon a new, more useful, and prosperous stage. I have to render my acknowledgments to the various officers of the school who have tried faithfully to attend to their duties.

Professor Kidwell has done an especially large amount of extra work in fitting up the engineering building, shops, heating plant, etc. As it was predicted in my report for 1892 (page 53), this long-continued overwork has resulted in so complete a break-down that it will be impracticable for him to continue his work longer, unless given a rest and change. By re-adjusting his work, his vacation can be prolonged until the opening of the winter term without serious detriment to the school. This should be done this year and next, if need be, since the school cannot afford to lose so able and energetic an officer.

Very respectfully yours,

M. E. WADSWORTH.

AKELEY INSTITUTE.

REPORT OF CHAPLAIN.

HON. HENRY R. PATTENGILL, *Superintendent of Public Instruction.*

DEAR SIR: In accordance with the laws of the State, I send you the report of Akeley Institute for the year 1894-5.

The year ending June 19 was both pleasant and profitable to teachers and pupils, much good work having been done. Forty pupils were in attendance, a somewhat smaller number than in the previous year. In June a class of four was graduated. A pleasant feature of commencement was the presence of the large number of visitors from out of town—an indication that the school is becoming more widely known and of a greater appreciation of its work. A considerable addition to the library was made during the year. The income from board and tuition was $7,817.56. The following corps of teachers and officers has had charge of the work:

The Rt. Rev. Geo. D. Gillespie, D. D., Rector.
The Rev. James E. Wilkinson, Chaplain, Latin, History, Logic.
Mrs. James E. Wilkinson, Principal, Latin, English, Literature.
Helen Vila Cochrane, German, Mathematics.
E. M. King, M. D., English, Science.
Mary Rippey, English, French.
Mrs. M. I. Davis, Art.

DEPARTMENT OF MUSIC.

Henry C. Post, (Piepsic) Piano.
Annie L. Martin, Piano.
Francis Campbell, Vocal.
Wilbur Force, Violin.
Jane Kerr Auketell, House-mother.

Respectfully submitted,
JAMES E. WILKINSON.

ALMA COLLEGE.

REPORT OF PRESIDENT.

HON. HENRY R. PATTENGILL, *Superintendent of Public Instruction.*

DEAR SIR: I have the honor to present to you the report of Alma College for the year 1894-5.

THE CORPORATION.

TRUSTEES.

Class of 1895—
William O. Hughart, Esq., Grand Rapids.
Rev. David M. Cooper, D. D., Detroit.
Thomas Merrill, Esq., Saginaw.
Charles Stinchfield, Esq., Detroit.
Charles H. Davis, Esq., Saginaw.

Class of 1896—
Rev. Wm. A. McCorkle, D. D., Detroit.
Hon. Frederick W. Wheeler, West Bay City.
Rev. William H. Clark, D. D. Bay City.
Edgar A. Bagley, M. D., Alma.
W. H. Gilbert, Esq., Saginaw.

Class of 1897—
Hon. Nathan B. Bradley, Bay City.
H. P. Christy, Esq., Detroit.
Rev. Theodore D. Marsh, D. D., Richland.
Rev. David Howell, Lansing.
Robert S. Tracy, Esq., Sturgis.

Class of 1898—
Hon. Russell A. Alger, Detroit.
James R. Wylie, Esq., Grand Rapids.
Hon. John M. Longyear, Marquette.
Ammi W. Wright, Esq., Alma.
William Widdicomb, Esq., Grand Rapids.

OFFICERS OF THE BOARD OF TRUSTEES.

Hon. N. B. Bradley, Chairman.
Prof. J. W. Ewing, Secretary.
A. W. Wright, Esq., Treasurer.

EXECUTIVE COMMITTEE.

A. W .Wright, Esq., Chairman.
Hon. N. B. Bradley.
Rev. A. F. Bruske, D. D., ex officio.
Thos. Merrill, Esq.
E. A. Bagley, M. D.
Hon. F. W. Wheeler.
Prof. J. W. Ewing, ex officio, Secretary.

LADIES' ADVISORY BOARD.

Miss Mary C. Gelston.
Mrs. A. F. Bruske.
Mrs. A. W. Wright.
Mrs. J. H. Lancashire.
Mrs. Nathan Church.

VISITING COMMITTEE.

Appointed by the Synod of Michigan.
Rev. James M. Barkley, Detroit.
Rev. Willard K. Spencer, Adrian.

THE FACULTY AND OTHER OFFICERS FOR THE YEAR 1894-95.

August F. Bruske, D. D., President and Professor of Biblical Literature and Theism.

Kendall Brooks, D. D., Folsom Professor of Mathematics, Dean of the Faculty.

Joseph W. Ewing, A. M., Folsom Professor of Physics, and Principal of the Preparatory Department.

Mary C. Gelston, A. M., Professor of Latin, and Lady Principal.

Charles A. Davis, A. M., Stone-Davis Professor of the Natural Sciences.

John T. Ewing, A. M., Longyear Professor of Ancient Languages.

————————, Wells Professor of Mental and Moral Science.

Helen Church, Instructor in Modern Languages.

Anna B. Gelston, Ph. B., Instructor in Latin and English.

Rev. W. F. Jones, B. D., Instructor in the English Bible.

Eleanora Bushnell, Principal of the Department of Music.

Kate L. Booth, Principal of the Department of Art.

Mary D. Plum, Principal of the Department of Kindergarten Training.

Amos W. Beckner, Principal of the Commercial Department.

Charles W. Sidebotham, Assistant in Shorthand.

Fred. Fullerton, Assistant in Mathematics.

Elizabeth B. Case, Librarian.

Charles A. Davis, Secretary.

John T. Ewing, Registrar.

SPECIAL LECTURERS.

Elmore S. Pettyjohn, M. D., Physiology and Hygiene.
Ira N. Brainerd, M. D., Sanitary Science.

SUMMARY OF STUDENTS.

Graduates in 1894	2	
Undergraduates	36	
		38
Preparatory Department		31
Special Students		26
Kindergarten Training Department		9
Commercial Department		19
Music Department		100
Art Department		37
Evangelistic Training Department		5
Summer Term, 1894		30
		295
Counted twice		75
Total from Sept. 12, 1894, to April 15, 1895		220
Total from April 15, 1894, to April 15, 1895		268

These statements are indicative of a gratifying increase in the student body. While the growth is chiefly in the Department of Music, it is not there exclusively. The other departments share in it, showing a strengthening of the whole institution.

GIFTS AND GIVERS.

The following donations of specimens to the museum are gratefully acknowledged:

William Pitt, Seville, Indian implement; Fred Fullerton, Alma, Indian implement; C. F. Brown, Alma, geological specimen; H. M. Haskell, M. D., Palmer, collection of iron ores and products; Rev. F. L. Forbes, Midland, minerals; Jacob A. Voorhees, Alma, Indian relics and fossils; President A. F. Bruske, geological specimens; Rev. Job Pierson, D.D., Stanton, skin of Gila monster; W. S. Culver, Midland, Indian implement and fossils; William Howe, Alma, fossil; William Jamieson, Missoula, Montana, collection of ores; Mrs. Olive Perkins, Birmingham, geological specimen; Hon. W. S. Turck, Alma, sponges and sea fans; W. Steele, Alma, fossils.

In the past year the following generous donors have made gifts to the library:

George S. Aldrich, St. Louis; Mrs. W. A. Bahlke, Alma; Rev. L. B. Bissell, Monroe; Hon. N. B. Bradley, Bay City; Rev. Dr. Kendall Brooks, Alma; Heirs of Otis A. Critchett, Monroe; Prof. J. T. Ewing, Alma; Rev. D. A. Jewell, Ionia; Esther and Frank Marsh, Alma; Mrs. Olive Perkins, Birmingham; Rev. Dr. Job Pierson, Stanton; Rev. W. S. Potter, Battle Creek; Rev. F. Z. Rossiter, Plainwell; C. Ernest Scott, Alma; Lester A. Sharp, Alma; Charles Stinchfield, Detroit; Mrs. Anson Waring, Detroit; Ammi W. Wright, Alma.

The gift of Mr. W. S. Crawford of Detroit, deserves special mention because of its exceeding beauty and value. It consists of seven cases of mounted birds. There are 237 specimens collected in Michigan, Arizona, Florida, and South America. They are placed side by side in pairs, male

and female. The cases being air tight and therefore also dustproof, they have preserved these jewels of the forest and meadow and thicket so perfectly that there is not a feather ruffled nor a tint of plumage dimmed. This royal gift will greatly enrich our museum.

THE MUSEUM AND GYMNASIUM BUILDING.

The month of October, 1894, was made memorable to Alma and to the College by the meeting here of the Synod of Michigan. A part of the program of exercises was the laying of the corner stone of the museum and gymnasium building. The College authorities realized that such a structure had become a necessity. The many valuable specimens of natural history which had been put into our possession needed to be cared for and placed in order for class instruction and for general information. The healthy life and physical development of the students loudly called for the drill of the gymnasium. Hence this building. It is of two stories, 40 by 80 feet, the upper floor serving the purposes of a gymnasium, the lower the double object of a museum of natural history and literary societies. It is believed that this building thoroughly furnished will complete the necessary equipment of a College fully abreast of the times.

Very truly yours,

A. F. BRUSKE.

HOLLAND CHRISTIAN REFORMED SEMINARY.

REPORT OF RECTOR.

HON. HENRY R. PATTENGILL, *Superintendent of Public Instruction.*

DEAR SIR: I have the honor to submit the following report of our Seminary at Grand Rapids, Michigan, for the year 1895.

Our Seminary is connected with a college as a propædeutic division of our Theological School. Our Theological School includes also two departments; viz., one Literary Department and one Theological Department.

The first named division is the introduction to the college, or the theoligical part of the school.

In the Literary Department are four classes and in the Theological Department are three. The course of studies at our school is seven years; four years in the literary division and three in the theological.

There are now six examinations; the first after two years of study is upon geography, Greek, Roman, and northern mythology, Greek and Roman antiquities. The second examination is after three years of study and is upon rhetoric, history of the United States and history of Holland. The third is after four years of study and is upon logic, psychology, history of philosophy, general history, and Holland, English, German, Latin, Greek, and Hebrew languages.

There are three examinations in the Theological Department. The first, after one year of work, includes Hebrew antiquities, Biblical geography, Biblical history, Hermeneutics and natural theology. At the close of the second year the examination includes textual criticism of the Bible, introduction of the dogmatics, history of the dogmatics, Exegesic and Isagogic. At the close of the third year and also of the Theological course, the examination covers dogmatics, church history, church government, homiletic, catechetic, liturgic, poimenic and moral philosophy.

The number of students at our school was last year 46. The lesson days cover every day of the week, except Sunday.

The Theological school is a Holland institution for education and preparation of young men for the ministry of the Holland people in the United States of North America. The expenses for teachers, school buildings, etc., is obtained by the congregations of the church.

The Holland Christian Reformed Seminary was established at Grand Rapids, Michigan, in 1876. The first professor was Rev. G. E. Boer; the second, Rev. G. Hemkes; the third, Rev. G. Vos, Ph. D. The instructors, Mr. G. Berkhof (deceased), Rev. G. Vos, Ph. D., leave the school, and Messrs. J. Rooks and R. Schoolland are instructors now.

Three of our students have temporarily left the school on account of sickness and weakness, and one died in October last.

Eight students attended the school for the first year. We have very much reason for humble thanks to the Lord for He has blessed our theological school very much.

Respectfully yours,

G. E. BOER.

REPORT FROM BOARD OF TRUSTEES.

DEAR SIR: The Trustees of the Theological School of the Holland Christian Reformed Church of America would respectfully beg leave to report the condition of said school. The names and residences of the trustees are as follows:

Rev. J. H. Vos, Grand Rapids, Mich.
Rev. J. Post, Lamont, Mich.
Rev. K. Kniper, Grand Haven, Mich.
Rev. A. Keizer, East Saugatuck, Mich.
Hon. Jay W. Garvelink, Graafschap, Mich.
Rev. J. Riemersma, D. D., Chicago, Ill.
Rev. P. Van Vlaadere, Paterson, New Jersey.
Rev. J. Noordeivier, Fisher Station, Mich.
Rev. G. D. DeJong, Grand Haven, Mich.

The names of the Professors are:

Rev. G. K. Hemkes, Grand Rapids, Mich.
Rev. H. Beuker, Grand Rapids, Mich.
Rev. G. E. Boer, Grand Rapids, Mich.
Mr. A. J. Rooks, A. B., Grand Rapids, Mich.
Mr. K. Schoolland, Grand Rapids, Mich.

The school is located at Grand Rapids, Mich., Cor. Madison and Fifth avenues.

There are at present forty-nine students, fifteen of which are in the Theological Department and thirty-four in the Literary Department.

A library is kept in connection with the school.

The value of lot, building, library, furniture, $30,000. The amount of available capital subscribed and on hand by the last settlement for the year 1895 was, after deducting all the expenses for the year, five thousand eight hundred and thirty-three dollars and twenty-three cents, ($5,833.23).

Given under my hand and the seal of said school this twenty-ninth day of November, A. D. 1895.

G. D. DEJONG,
Secretary of Trustees.

HOPE COLLEGE.

REPORT OF PRESIDENT.

HON. HENRY R. PATTENGILL, *Superintendent of Public Instruction.*

MY DEAR SIR: I have the honor to submit the following report of Hope College for the year 1894-5.

On the 26th of June, 1894, our new building, Graves Library and Winants Chapel, was dedicated. Special addresses were delivered by President Austin Scott, LL.D., of Rutgers College; Rev. Peter Moerdyke, D. D.; and Rev. H. E. Dosker, D. D.

On the 27th of June, 1894, Gerrit J. Kollen, LL.D., was inaugurated as President. Addresses were made by the Rev. Philip Phelps, D. D., LL. D., first President of the College, and the Rev. G. H. Mandeville, D. D., Secretary of the Board of Education of the Reformed Church in America. The keys were delivered to the new President by the Rev. Cornelius Brett, D.D., of Jersey City, N. J., President of the Board of Trustees, after which the President delivered his inaugural.

TRUSTEES.

EX OFFICIO.

Gerrit J. Kolien, LL.D. Elected President of the College by General Synod of Reformed Church).
Rev. G. H. Mandeville, D. D., New York City, N. Y.
Rev. Jas. F. Zwemer, Orange City, Iowa.
Rev. Peter Moerdyke, D. D., Chicago, Ill.
Hon. Isaac Cappon, Holland, Mich.
Hon. Gerrit J. Diekema, Holland, Mich.
Rev. Cornelius Brett, D. D., Jersey City, N. J.
Hon. N. F. Graves, LL.D., Syracuse, N. Y.

FROM CLASSIS OF GRAND RIVER.

Rev. Peter DeBruyn, Grand Haven, Mich.
Rev. Dirk Broek, Grandville, Mich.

FROM CLASSIS OF HOLLAND.

Rev. Gerhard DeJong, Vriesland, Mich.
Hon. Jacob Den Herder, Zeeland, Mich.

FROM CLASSIS OF DAKOTA.

Rev. John A. DeSpelder, Orange City, Iowa.
Rev. S. J. Harmeling, Marion, S. D.

FROM CLASSIS OF IOWA.

Rev. Peter Lepeltak, Alton, Iowa.
Rev. James De Pree, Sioux Centre, Iowa.

FROM CLASSIS OF ILLINOIS.

Rev. J. S. Joralmon, Norwood Park, Ill.
Francis J. Cushing, Irving Park, Ill.

FROM CLASSIS OF MICHIGAN.

Rev. Samuel Streng, Kalamazoo, Mich.
Rev. Wm. Hall Williamson, Grand Rapids, Mich.

FROM CLASSIS OF WISCONSIN.

Rev. John H. Karston, Oostburg, Wis.
Rev. B. Van Ess, Roseland, Ill.

FROM CLASSIS OF PLEASANT PRAIRIE.

Rev. D. Schaefer, Parkersburgh, Iowa.
Rev. A. F. Beyer, German Valley, Ill.

COLLEGE DEPARTMENT.

Gerrit J. Kollen, LL.D., President, in charge of Ethics and Psychology.

Cornelis Doesburg, A. M., Secretary, Professor of Modern Languages and Literature, in charge of Art Studies.

Henry Boers, A. M., Professor of History.

John H. Kleinheksel, A. M., Vice President, Professor of Mathematics.

James G. Sutphen, A. M., Professor of the Latin Language and Literature.

Rev. John H. Gillespie, A. M., Ralph Voorhees Professor of the Greek Language and Literature.

John B. Nykerk, A. M., Professor of Music, Assistant Professor of English.

Douwe B. Yntema, A. M., Professor of Chemistry and Physics.

Erastus A. Whitenack, A. B., Professor of English Literature, Instructor in French and German.

Hon. G. J. Diekema, A. M., LL. B.,
John C. Post, LL. B.,
Arend Visscher, A. M., LL. B.,
Geo. E. Kollen, A. B., LL. B.,
} Lecturers on Political Economy.

At its June meeting in 1894 the Board of Trustees established a new chair, that of Ethics and Evidences of Christianity. The Rev. John Tallmadge Bergen of Brooklyn, N. Y., was elected to fill it.

At the same meeting Mr. A. F. Harvey of Fayette, Iowa, was elected as tutor in the Preparatory Department.

ATTENDANCE.

During the year there have been in attendance in the College 83, and in the Primary Department 190. There was also a successful normal class in attendance last summer, numbering 115. Total attendance, 388.

MISCELLANEOUS.

At our last Commencement eleven graduated, nearly all of them in full classical course. It is the aim of the College to make this course strong, in order that it may serve as a broad basis for the pursuit of professional studies.

The new building has proved to be a great help and comfort to both teachers and students. Its dimensions are 85x144 feet, and three stories high, including basement. It contains a chapel; a Young Men's Christian Association room; an assembly room for the Board of Trustees, which also serves as President's lecture room; a reading room; four lecture rooms; and a stack room for the library that will hold more than 50,000 volumes. All that part of the building which is devoted to library purposes, is fire proof—the rest has been constructed on the plan of slow combustion.

The College aims to help young people of limited means to secure a thorough, practical, liberal education, in harmony with and based upon, the principles of Christianity.

THE WESTERN THEOLOGICAL SEMINARY OF THE REFORMED CHURCH IN AMERICA.

This institution is so closely connected with Hope College that it is often thought to be a department of the College and has sometimes been reported as such. It is, however, an independent institution, having its own faculty, and standing under more direct control of the Reformed Church.

In June, 1894, the Rev. Henry E. Dosker, D. D., was elected by the General Synod Professor of Historical Theology. During the year the Rev. N. M. Steffens resigned, and at the last meeting of General Synod in June, 1895, the Rev. Egbert Winter, D. D., was elected to the vacant chair of Polemic and Didactic Theology.

The Rev. J. W. Beardslee, D. D., is Professor of Biblical Languages and Literature. These three professors now constitute the faculty of the Seminary. There are now 19 students in attendance. At the last Commencement nine graduated.

Last summer a very commodious hall was built for Seminary purposes, which is the generous gift of Mr. Peter Semelink.

Respectfully submitted,

G. J. KOLLEN.

KALAMAZOO COLLEGE.

HON. HENRY R. PATTENGILL, *Superintendent of Public Instruction.*

MY DEAR SIR: I have the honor to submit herewith the annual report of Kalamazoo College for 1894-5.

While the attendance remains about the same as one year ago, there has been a manifest increase of interest in the College, both in the city and throughout the State, and an admirable spirit has prevailed among the students.

The vacancy caused in the Department of Mathematics by the resignation of Professor P. F. Trowbridge was filled by the election of Professor Clark B. Williams, a graduate of Princeton University, for two years Instructor in that institution and, for the two years following, a student in the Universities of Göttingen and Leipzig.

Miss Caroline Swartout, a graduate of Cornell University and an instructor with a good record, succeeded Miss Mary Relihan in the Department of German and English.

The courses of study in the several departments are indicated in our Annual for '94-'95, which accompanies this report. The annual outlines a Classical Course leading to the degree of A. B.; a Latin Scientific Course leading to the degree of Ph. B.; and a Scientific Course leading to the degree of B. S. Schemes of study are also arranged to prepare for these various courses, while Biblical and musical instruction are given a due amount of attention.

But few changes have been made in the members or officers of the Board of Trustees, and there has been loyal support of the present administration of the College. We are still hoping for increased facilities for our work, and the outlook is encouraging.

THE FACULTY.

Arthur Gaylord Slocum, LL. D., President and Professor of Mental and Moral Philosophy, 117 Woodward avenue. A. B., University of Rochester, 1874; A. M., University of Rochester, 1877; LL. D., University of Rochester, 1892; Principal, Rochester Collegiate Institute, 1874-75; Principal, Riverside Collegiate Institute, Wellsville, N. Y., 1875-76; Superintendent of Schools and Principal, Free Academy, Corning, N. Y., 1876-92; President, Kalamazoo College, 1892.

Samuel Brooks, D. D., Professor of the Latin Language and Literature, 710 West Lovell street. A. B., Brown University, 1852; A. M., Brown University, 1855; D. D., Franklin College, 1855; Instructor in Greek, Brown University, 1854-55; Graduate, Newton Theological Institution, 1857; Pastor, Beverly, Mass., 1857-60; Instructor in Hebrew, Newton Theological Institution, 1860-69; Pastor, South Framington, Mass., 1862-64; West Medway, Mass., 1866-69; Professor of Latin, Kalamazoo College, 1869.

Seth Jones Axtell, A. M., Professor of the Greek Language and Literature, 516 Locust street. A. B., Brown University, 1864; A. M., Brown University, 1895; Graduate, Newton Theological Institution, 1867; President and Instructor, Leland University, New Orleans, La., 1878-82; President and Instructor, Central University, Pella, Iowa, 1889-90; Professor of Greek, Kalamazoo College, 1890.

Stillman George Jenks, B. S., Professor of Natural Sciences, 421 Douglas avenue. B. S., University of Michigan, 1891; Physical Sciences, Lansing High School, 1887-89; Assistant in Qualitative Chemistry, University of Michigan, 1890-91; Professor of Natural Sciences, Kalamazoo College, 1891.

Samuel Haskell, D. D., Professor in the Department of Biblical Instruction, 931 Austin street. A. B., Brown University, 1845; Hamilton Theological Seminary, 1845-47; Pastor, Detroit, 1847-52; Kalamazoo, 1852-71; Ann Arbor, 1871-88; Professor, Kalamazoo College, 1891.

Clarke Benedict Williams, A. M., Professor of Mathematics, 449 West Lovell street. A. B., College of New Jersey, 1890; A. M., College of New Jersey, 1895; J. S. K. Fellow Instructor in Mathematics, College of New Jersey, 1890-91; Instructor in Mathematics, College of New Jersey and Evelyn College, 1891-92; Student, University at Göttingen, 1892-93; Student, University at Leipzig, 1893-94; Professor Mathematics, Kalamazoo College, 1894.

Clark Mills Brink, Ph. D., Professor of English and History, 610 Douglas avenue. A. B., University of Rochester, 1879; A. M., University of Rochester, 1893; Graduate, Rochester Theological Seminary, 1882; Pastor of First Baptist Church, Des Moines, Iowa, 1882-87; Pastor in Newark, N. J., 1888-92; Graduate student, University of the City of New York, 1890-94; Ph. D., University of the City of New York, 1894; Instructor in Rhetoric and Oratory, Brown University, 1892-95; Professor of English and History, Kalamazoo College, 1895.

Maud Wilkinson, A. B., Instructor in French, 613 Academy street. A. B., Wellesley College, 1889; Graduate Student, University of Chicago, 1892-93; Instructor in French, Kalamazoo College, 1893.

Lucy Johnson, Ph. B., Instructor in English and Latin, 623 West South street. Ph. B., University of Michigan, 1893; Assistant Principal of High School, Leroy, Ill.; Instructor, Kalamazoo College, 1893.

Carolinne Harder Swartout, A. B., Instructor in German, Ladies' Hall. A. B., Cornell University, 1892; Preceptress of High School, Middletown, N. Y., 1892-93; Public School, Yonkers, N. Y., 1893-94; Instructor in German, Kalamazoo College, 1894.

George Kuhn Grant, A. M., Instructor in Mathematics and Science, 429 West Lovell street. A. B., Ottawa University, 1891; A. M., Ottawa University, 1895; Instructor in Dover Academy, Tenn., 1891-2; Instructor

Waverly College, 1892-3; Junior Fellow in English, University of Chicago, 1893-4; Principal, Eufaula Indian National High School, Eufaula, 1894-5; Instructor, Kalamazoo College, 1895.

George Herbert Fairclough, Instructor in Piano, Organ, and Theory of Music, 703 West South street. Late organist of All Saints Church, Toronto, Can.; and Musical Director of the Brantford Ladies' College; studied in Berlin and London, 1893-95; Certificated pupil of the Royal High School of Music, Berlin; Organist and Choirmaster St. Luke's Church, Kalamazoo, 1895; Instructor in Music, Kalamazoo College, 1895.

Frank Flanders Churchill, Instructor in Vocal Music, 604 Village street. Music Department of Hillsdale College, 1888-91; Chicago Conservatory of Music under Vittorio Carpi; Private pupil of William Castle and of G. Napoleon Carozzi of Chicago; Director of Vocal Department, Keuka College, 1892-94; Instructor in Music, Kalamazoo College, 1895.

Helen Elizabeth Keep, Instructor in Art, 624 Academy street. Pupil of the Chicago Art Institute; Instructor in Art, Kalamazoo College, 1895.

OTHER OFFICERS.

Stillman George Jenks, B. S., Librarian.
Seth Jones Axtell, A. M., Steward.

Respectfully submitted,

A. GAYLORD SLOCUM,
President.

MICHIGAN MILITARY ACADEMY.

REPORT OF SUPERINTENDENT.

HON. HENRY R. PATTENGILL, *Superintendent of Public Instruction.*

MY DEAR SIR: I have the honor to submit my report of the seventeenth school year of the Michigan Military Academy, ending June 12, 1895.

The work accomplished during the year was highly satisfactory to myself and staff and the patrons of the school. The value of the military system of educating boys is becoming better understood and consequently better appreciated. Professional and business men of this busy day are forced to the conviction of the need of prompt habits, precise calculation, and decided action—principles inculcated into the mind of the student nowhere so thoroughly as through the critical military curriculum and discipline.

Each succeeding year brings us a greater percentage of boys who come to prepare for college, and our work is accordingly more effective and satisfactory. It has now become so generally known that we will not receive a boy with bad habits or immoral tendencies—or if received through any misapprehension of facts, that he will not be permitted to remain—that we have less annoyance through the applications of the parents of such boys than heretofore. It requires an honorable, manly, studious boy to make a good cadet; and this fact is becoming more and more familiar to the public, and the growing sentiment in favor of the military system is supplying the demand for the right kind of material. We are, therefore, in a most prosperous condition.

The Academy will continue to prepare students for all the departments of Harvard, Yale, Princeton, Cornell, Chicago, and Michigan Universities, as well as for other colleges, scientific schools, law schools, and the national academies at West Point and Annapolis. Special attention is given to every student, so that all may secure the best preparation for college without loss of time. Courses in Blackstone and English history are offered to students preparing for law schools.

To cadets finishing courses of study at the Academy, diplomas are granted in three grades, A, B, and C, according to excellence in scholarship. To receive an A diploma a cadet must take the studies of the third and fourth years, or pass an examination in those studies at the Academy.

No final standing in any study of the third year shall be less than eighty-five, and none in the fourth year less than ninety. The B diploma is granted to those who have no final standing less than eighty-two in the third and fourth years. Cadets who have a general average of eighty in the work of the fourth year, with only one study below eighty, and not less than seventy-eight, receive a C diploma. Graduates holding a C diploma are not recommended to any University, and are not entitled to admission without examination.

Graduates of the Academy are admitted without examination at Cornell, Lehigh, Michigan, Wisconsin, Kansas, Iowa, Colorado, Missouri, and Stanford Universities; also at Michigan Mining School, Colorado School of Mines, and other higher institutions where certificates are accepted. Authority has been given to the Academy to appoint one member of each graduating class to a free scholarship for the freshman year in the University of Chicago.

Through the generosity of Judge A. C. Baldwin of Pontiac, Michigan, the Academy has lately come into possession of a library of great usefulness in the school work. The departments of history, literature, and political science are especially complete. The school library now numbers about ten thousand volumes. The books are numbered and arranged according to the Dewey system, and are made accessible for school work by a dictionary card catalogue of the latest model, recommended by the American Library Association, and exhibited at the World's Columbian Exposition.

J. SUMNER ROGERS,
Col. "M. N. G."

RAISIN VALLEY SEMINARY.

REPORT OF PRINCIPAL.

HON. HENRY R. PATTENGILL, *Superintendent of Public Instruction.*

DEAR SIR: I send you herewith my annual report of this institution.

The year has been a successful one in every respect. The enrollment was fair, and the percentage of attendance good. There has been a change made in the management of the institution for next year. The Board has for many years employed a superintendent whose duties were the collection of all fees and management of the boarding department. That is now discontinued, and the work done by the superintendent is assigned to the principal, and his work partly distributed to the other teachers. This makes no change in the school work, as the superintendent has never done teaching.

Four courses of study are provided; a scientific Course, giving two years of German, one year of English and American literature; the Latin Course, with three full years in Latin; the Latin-Scientific, giving two years each of Latin and German, without the literature; and the English Course with no foreign languages.

These courses have all been prepared to meet the requirement at the University and have been accepted there,—the Latin Scientific as sufficient to prepare for entering the course leading to the degree B. S., and the others as leading to the degree B. L. Diplomas were conferred in all of these courses this year. I have only given the characteristic studies in these courses, the remainder being such a combination of science, history, and mathematics as will give the best general training.

The instructors for the coming year are, Principal, T. W. White, B. S.; Assistant Principal, Mary Edwards, A. B.; Assistant Teacher, Chauncy A. Graves.

The work of the year has been characterized by earnestness and patience, and the rapid development of mind and character have been noticeable.

The institution aims to provide good religious influence and, together with literary training, to encourage the acceptance of Christianity; and in this sphere of action it is doing its work well.

Respectfully submitted,

T. W. WHITE.

ST. MARY'S ACADEMY.

REPORT OF PRESIDENT.

HON. HENRY R. PATTENGILL, *Superintendent of Public Instruction.*

DEAR SIR: I respectfully submit the following report of St. Mary's Academy for the scholastic year 1894-5.

BOARD OF TRUSTEES.

Mother M. Justina, President.
Sister M. Clotilda, Vice President.
Sister M. Gertrude, Secretary.
Sister M. Aloysia, Treasurer.
Sister M. Mechtildis.
Sister M. Augustine.
Sister M. Fidelia.

FACULTY.

Mother M. Justina, President and Prefect of Studies.
Sister M. Fidelia, First Academic Department.
Sister M. Alphonsine, Second Academic Department.
Sister M. Leonilla, Senior Department.
Sister M. Odila, Intermediate Department.
Sister M. Lucina, Junior Department.
Sister M. Paula, Preparatory Department.
Sister M. Loyola, Elocution.
Sister M. Virginia, Stenography and Typewriting.
Sister M. Blanche, French and Art.
Sister M. Aloysia, German.
Sister M. Germain, Art.
Sisters M. Theodosia, M. Scholastica, Mary Edward, M. Camilla, M. Laura, and M. Annette, Music.
Sister M. Athanasia, Art Needle Work.
Sister M. Augustine, Directress of Young Ladies.
Sister M. Leonora, Directress of Minims.

The whole number of pupils enrolled was 159, the majority of whom pursued the regular course of study, a few devoted their time to music, and as usual there were some who came for Normal School work.

The course of study has been slightly modified; but the text-books are those named in our report of 1894, with the exception of Townsend's Civil Government, and William's and Roger's Book-keeping. A few other changes are contemplated. Instructors are expected to follow the lecture plan wherever it is practicable, and the pupils are encouraged to consult the many valuable works of reference at their command.

Several additions have been made to the physical apparatus, especially in the line of electricity; and during the coming year increased facilities will be offered for progressive science work, while in the Commercial Department the greatest possible attention will be given to systematic and varied actual business practice.

Through the kindness of Hon. Jas. Gorman and others many useful books have been added to the library; and we are indebted also to Rev. Wm. Reaney, U. S. N., for a very generous and highly interesting collection of curios and relics from South America, China, and Japan.

Both teachers and pupils have been faithful and earnest in the discharge of their duties, and the many friends of the institution have reason to expect that it will continue to deserve the confidence of the public.

MOTHER M. JUSTINA.

SPRING ARBOR SEMINARY.

REPORT OF PRINCIPAL.

HON. HENRY R. PATTENGILL, *Superintendent of Public Instruction.*

DEAR SIR: The following is a report for the year 1894-5.

Spring Arbor Seminary was opened as a Free Methodist school in the spring of 1873. It has been in successful operation since that time, and its influence for good has been widely felt. It is the firm belief of the Board of Trustees and those who have the management of the institution, that its field of usefulness is still large and open.

It is located at Spring Arbor, Jackson County, Michigan, about eight miles southwest of Jackson, on the Air Line division of the Michigan Central Railroad. Spring Arbor is a small village in the midst of a rich farming country, healthful, and free from the corrupting influence of the saloon, as well as from other evils which abound in larger towns and cities. The moral tone of the community is good, and the people generally appreciate the worth of this institution. It has a large local patronage.

The Seminary is under the control of the Free Methodist church, and looks especially to the Conferences of Michigan, Ohio, and Canada for support. It is our endeavor to inclucate the principles of true Christianity. It is Free Methodist in doctrine, and we endeavor to teach and exemplify the religion of the Bible. We desire the salvation of our students and to this end our efforts are directed. In connection with moral training we insist upon thorough intellectual culture.

There are two buildings. The school building is brick, three stories high and heated with furnace. The Boarding Hall is a frame building two stories high and comfortably arranged for the accommodation of the school family. While the Seminary has a good property free from encumbrance, it has no endowment, hence must depend upon the income from tuition fees to meet current expenses, and upon the generosity of its friends to make repairs upon the premises, and improvements in the apparatus, etc. For this reason we bespeak the coöperation of all interested in our educational work.

We have a fair working library of about six hundred volumes. We would consider it an especial favor if those interested in the Seminary would donate books of history, science, biography, and poetry to this cause.

We have made important additions to our facilities for work in chemistry and are now able to pursue this study very satisfactorily. Arrangements have been made for a good supply of physical apparatus which will be in readiness for use this year.

PRIMARY DEPARTMENT.

We maintain a primary school covering the work of the first four grades. Vocal music is taught in this department without extra charge.

INTERMEDIATE DEPARTMENT.

Reading, orthography, grammar, arithmetic, geography, and United States history are completed in this department.

ACADEMIC DEPARTMENT.

Important changes in this department have been decided upon to go into operation in 1895-6. The courses have been extended and revised so as to bring the Seminary into such relations to the University of Michigan that our graduates may be admitted to that institution without examination. These courses of study now have the endorsement of the University and we expect soon to be placed on the diploma list. There are three courses each covering four years as follows: Classical, Latin, and Scientific. The English course covers three years.

CHRISTIAN WORKERS' COURSE.

We have arranged for a year's course in training for Christian work, introducing such studies as are especially helpful to those expecting to engage in the work of the Lord. Those who enter upon this course should have a thorough knowledge of the branches included in the intermediate department.

COMMERCIAL.

A six months' course in bookkeeping, and a six months' course in stenography and typewriting have been established.

MUSIC.

Classes in vocal music are maintained throughout the school year, and lessons upon the organ and piano are given at the usual rates.

FACULTY.

Rev. David S. Warner, A. M., Principal.
Miss Emma E. Pretty, History and English.
George Bradfield, Science and Mathematics.
Ira B. Reed, Assistant in Mathematics.
Louesa S. Warner, Primary.

Respectfully submitted,

DAVID S. WARNER.

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